

**US Army Corps
of Engineers®**

SPECIAL PUBLIC NOTICE

SPECIAL AREA MANAGEMENT PLAN (SAMP)

Progress Report

San Diego Creek Watershed, Orange County, California

LOS ANGELES DISTRICT

Public Notice/Application No.: 199915966-1-CJF
Comment Period: **January 7, 2005 through February 22, 2005**
Informational Public Meeting: **Wednesday, January 12, 2005 from 7:00 to 9:00 PM at the Peter and Mary Muth Interpretive Center, 2301 N. University Drive, Newport Beach, CA**
Project Manager: Corice Farrar Tel: (213) 452-3296;
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TO WHOM IT MAY CONCERN:

Location:

The San Diego Creek Watershed encompasses portions of the Cities of Irvine, Tustin, Santa Ana, and Lake Forest and unincorporated Orange County (see Figure 1). The Watershed lies within the boundaries of the Los Angeles District of the U.S. Army Corps of Engineers (Corps).

Activity:

As part of the effort to develop a Special Area Management Plan (SAMP) for the San Diego Creek Watershed, the Corps will publish a draft Joint Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) with California Department of Fish and Game's efforts to establish a Master Streambed Alteration Agreement (MSAA). The draft EIS/EIR is anticipated to be published and distributed for public review and comment in early 2005. Separate Special Public Notices to inform the public of the availability of the draft Joint EIS/EIR and for a Public Hearing will be published.

Additionally, in forthcoming separate Special Public Notices, the Corps shall propose the establishment of a watershed-specific permitting and mitigation program for Corps permits issued under Section 404 of the Clean Water Act of 1972 (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) within the San Diego Creek Watershed, Orange County, California.

The purpose of this Special Public Notice is to provide all interested parties with a progress report on the extensive efforts for the SAMP/MSAA process and the accomplishments achieved to date. Further, this Special Public Notice shall provide information about the results of technical analyses, including the identification of sensitive aquatic resources. In the interim prior to the release of the SAMP/MSAA Joint final EIS/EIR and Record of Decision, it is the

intent of the Corps to apply the best available information for its evaluation of permits. Through this Special Public Notice, we are notifying interested parties of additional factors that will influence how Corps Regulatory Branch Project Managers evaluate proposed regulated activities affecting waters of the United States located within the San Diego Creek Watershed.

Interested parties are invited to provide their views on the information presented in this Special Public Notice concerning the SAMP for the San Diego Creek Watershed study area. Comments will become a part of the administrative record and will be considered in the final decision. Comments should be mailed to:

U.S. Army Corps of Engineers, Los Angeles District
Regulatory Branch
ATTN: CESPL-CO-R-199915966-1-CJF
P.O. Box 532711
Los Angeles, California 90053-2325 or

Alternatively, comments or requests for additional information may be submitted electronically to Corice.J.Farrar@usace.army.mil.

I. Background

The Regulatory Branch of the Los Angeles District of the Corps of Engineers is developing a Special Area Management Plan (SAMP) in coordination with the California Department of Fish and Game's (the Department) Master Streambed Alteration Agreement (MSAA) for the Watershed. The Corps and the Department have undertaken a long-term, joint process with other resource agencies, including the California Regional Water Quality Control Board, Santa Ana Region (RWQCB), United States Fish and Wildlife Service, Region I (USFWS), and United States Environmental Protection Agency, Region IX (EPA), to develop a cohesive, watershed-specific plan to address anticipated permitting needs and compensatory mitigation, including long-term management of aquatic resources within the Watershed. Participation in the SAMP/MSAA process has also been undertaken in coordination with participating applicants through an extensive pre-application procedure and in consideration of public comments. The following local participating applicants have participated in this ongoing process: The Irvine Company, the Irvine Ranch Water District, the City of Irvine, and the County of Orange. With completion of the SAMP/MSAA process, the agencies shall establish permitting and mitigation policies and guidelines to protect the conservation values and functions of aquatic resource ecosystem in the San Diego Creek Watershed.

This process was described in a previous Public Notice and was the subject of public scoping meeting on August 14, 2001 and public workshop on July 17, 2002. The SAMP/MSAA process is a multi-year effort involving significant extended reviews of the conditions of the watershed and evaluation of potential environmental impacts. The Corps and the Department have made substantial progress on the SAMP/MSAA and are providing this progress report to the public prior to releasing a draft EIS/EIS in early 2005. In the interim, until the SAMP/MSAA process is finalized, the Corps and the Department will take into account the information gathered to date in evaluating any applications they receive. The primary goal of the progress report is to share with the public the baseline information that the Corps and the Department will use in further developing the permitting and conservation protocols for the SAMP/MSAA.

II. Environmental Studies and the SAMP Tenets

The SAMP/MSAA process began with a comprehensive analysis of existing conditions within the Watershed. As part of the identification and characterization of existing aquatic resources in the Watershed, the Corps and the Department conducted two key studies—a Planning Level Delineation and a Landscape Level Functional Assessment—that were used to formulate the SAMP Tenets, which are the scientifically based conservation principles that guide the SAMP/MSAA process. These reports are described below.

This proactive process represents a significant change from the Corps and the Department's standard operating procedures. The agencies invited potential applicants to undergo an extensive pre-application process and involved participating applicants from the beginning. Further, the SAMP/MSAA approach involved a comprehensive evaluation of the watershed's aquatic resources and surrounding areas affecting these resources. In contrast, under standard operating procedures, the Corps and the Department react to applications for permits and agreements and largely rely on site-specific data provided to them by applicants, supplemented by additional information from other applications or from environmental impacts reports or other available information. Additionally, under the standard operating procedures, the opportunity for looking comprehensively at impacts at a watershed scale is much more limited. The Corps and the Department believe that looking at the impacts of potential development at a broader scale is likely to identify opportunities to avoid and minimize impacts to aquatic resources.

A. Planning Level Delineation

A Planning Level Delineation (PLD) of aquatic resources, including a geospatial analysis, was conducted throughout the Watershed utilizing expertise from U.S. Army Engineer Research and Development Center's (ERDC) Cold Regions Research and Engineering Laboratory (Lichvar, 2000). The PLD involved extensive fieldwork and use of aerial photography to identify jurisdictional areas (WoUS, including lakes, streams and wetlands) at the landscape level (not at site-specific level). (This report may be found at: <http://www.spl.usace.army.mil/samp/sandiegocreeksamp.htm>).

B. Landscape Level Functional Assessment

A Landscape Level Functional Assessment (LLFA) was conducted utilizing expertise from ERDC's Environmental Laboratory to characterize the functional integrity of the watershed ecosystem (Smith, 2000). The SAMP/MSAA focused primarily on riparian ecosystems. Because water is the primary limiting ecological factor in the southwestern United States, riparian corridors are important resources in the landscape. Therefore, by their very nature, they are capable of supporting a diverse number of species within the landscape. Riparian corridors provide foraging, cover, and nesting/breeding habitat for fish and wildlife. They are conduits for many aquatic, riparian, and upland species, and they are important elements of aquatic resource conservation.

Three metrics were identified to assess riparian ecosystem integrity: hydrology, water quality, and habitat. Based on extensive fieldwork, the various riparian reaches within a drainage basin were assigned numerical ratings that categorized areas as high, medium, or low quality integrity for hydrology, water quality, and habitat. The LLFA is a new method of evaluating the condition of a watershed. This evaluation process supplements the routine evaluations the Corps and the Department do as part of their standard operating procedures. (This report may be found at: <http://www.spl.usace.army.mil/samp/sandiegocreeksamp.htm>).

C. The SAMP Tenets

The SAMP tenets are overarching, guiding principles for the study area based on the knowledge of the watershed's resources obtained through the baseline assessments. The Corps and Department identified these important scientific elements that, if adhered to, would ensure the objectives of the SAMP/MSAA. The following list of tenets contains a discussion of the relationship between the functional assessment and the tenets. The SAMP tenets go beyond the standards and criteria that are expressly contained in the Corps and the Department's standard operating procedures. They provide a method of evaluating potential impacts that will help the Corps and the Department be better able to achieve the basic goals of the Clean Water Act of protecting the biological, chemical and physical integrity of waters of the United States and the goals of the Fish and Game to avoid impacts to fish and wildlife that use the states lakes, streams and ponds.

1. No Net Loss of Acreage and Functions of Waters of the United States

Federal and state policy calls for no net loss of wetland acreage and functions. Because the SAMP/MSAA focuses on riparian ecosystems within the watershed, which encompass both the Corps' and the Department's jurisdictions, the no net loss policy is interpreted in a manner that is more holistic and includes riparian ecosystems. Thus, for the SAMP/MSAA, the evaluation of no net loss applies to riparian areas (or polygons) within the watershed, as mapped by the PLD. Riparian areas include, but are not limited to, any blue line streams and creeks (per USGS topographical maps) that were mapped as lines in the delineation. The goal of no net loss can be accomplished through the hierarchical process of avoidance, minimization of impacts, and compensatory mitigation, an exercise common to any Section 404 process and often referred to as the "mitigation sequence" required by the 404(b)(1) Guidelines (40 CFR 230.10).

2. Maintain/Restore Hydrologic, Water Quality, and Habitat Integrity

Riparian ecosystems with high hydrologic integrity exhibit the range of frequency, magnitude, and temporal distribution of stream discharge, and surface and subsurface interaction between the stream channel, floodplain, and terraces, that historically characterized riparian ecosystems in the region (Smith 2000). Water quality integrity was defined as exhibiting a range of loading in the pollutant categories of nutrients, pesticides, hydrocarbons, and sediments that are similar to those that historically characterized riparian ecosystems in the region. Riparian ecosystems with habitat integrity exhibit the quality and quantity of habitat necessary to support and maintain a balanced, integrated, adaptive biological system having the full range of characteristics, processes, and organisms at the site specific, landscape, and watershed scales that historically characterized riparian ecosystems in the region.

In managing the aquatic resources in a watershed, the goal is to maintain the integrity of these systems and to restore integrity of these resources wherever possible. Management of these resources should strive to conserve and restore riparian corridors with high hydrologic, water quality, and habitat integrity. This tenet strongly correlates with other parameters such as the floodplain connectivity, riparian corridor continuity, and sediment regime

because riparian reaches that would rate high for riparian ecosystem integrity would also rate high for these other parameters.

3. Protect Headwaters Areas

The conventional definition of headwaters is the most upstream segments of the main channel of a stream. The SAMP/MSAA defines the term more narrowly. In the SAMP/MSAA process, headwater areas are local drainages (of a particular reach) with tributaries consisting of first order streams discharging to second order streams.

Although the headwater areas may not contain riparian vegetation (e.g., ephemeral drainages), they contribute many important functions related to biogeochemical processes, including the maintenance of sediment transport and water quality. Protection of the particular tributaries flowing into a riparian reach would allow for the maintenance and/or restoration of riparian ecosystem integrity at the reach, sub-basin, and watershed scales. If left unprotected, impacts to headwater areas that flow into a particular reach of high integrity may lead to the eventual degradation of that reach. In addition, conserving and/or restoring undeveloped drainages that connect core areas of upland habitat would maintain important habitat linkages at the landscape scale.

4. Maintain/Protect/Restore Diverse and Continuous Riparian Corridors

Riparian corridors have greater value if they are continuous with respect to having an unbroken, canopy-covered corridor of trees and associated understory species. Unlike other habitat communities whose diversity is not compromised by natural gaps and patches of habitat, a riparian corridor's continuous nature enhances diversity and ecological functions related to movement corridors.

If established, the following measures would facilitate the protection and/or restoration of corridors:

- Permanent impacts (direct and indirect impacts) to corridors are avoided to the maximum extent feasible.

- Road crossings are sufficiently sized to allow native, riparian vegetation to establish and persist under the structure, and allow for faunal movement along the corridor.
- Biological buffers are established adjacent to all riparian corridors and unvegetated drainages.
- Upstream activities are completed in such a way as not to degrade downstream corridors by compromising habitat, water quality, and hydrologic integrity.
- Areas with corridor breaks are considered for restoration, except in some localized areas where such activities may limit the persistence, recovery, or dispersal of a listed or sensitive species.
- Maintaining continuous riparian corridors also allows for the hydrologic connectivity within a given network of conservation areas, which is important for aquatic organisms and for maintaining the hydrologic and water quality integrity of the watershed.

5. Maintain or Restore Floodplain Connection

High integrity riparian reaches have active floodplains that flood on a regular basis. This overbank flooding is vital for maintaining sediment regimes and allowing for native habitat, including the recruitment of riparian plant species. It also allows interchange of biotic materials and nutrients between the active floodplain and the active channel, allowing for transport of detritus and nutrients to downstream areas and maintaining ecosystem processes.

6. Maintain and/or Restore Sediment and Transport Equilibrium

High integrity reaches have functioning sediment regimes that balance erosional and depositional processes appropriate for that particular landscape position. Riparian habitat quality is often proportional to the quality of the sediment regime. Appropriate depositional processes allow the recruitment of new riparian vegetation. Excessive erosional processes remove riparian vegetation and lead to channel instability. There are many places in the subwatersheds with degraded sediment regimes that have the potential to be restored through the SAMP/MSAA.

7. Maintain Adequate Buffer for the Protected Riparian Corridors

Buffers are necessary to maintain various functions of riparian systems because “edge effects” from adjacent activities may lead to the degradation of a particular riparian area

over time. Adequate buffers ensure that the riparian ecosystems would be sustainable over time. The type of adjacent land use is important, as buffer requirements may be different if the adjacent land use is residential versus open space, for example.

The scientific literature has shown the effects of various buffer widths on endpoints such as general water quality, specific water quality parameters such as temperature and sediment, effects to benthic macroinvertebrates, and effects to wildlife to name a few examples. The protection and restoration of riparian areas may be facilitated by ensuring that buffers are as follows:

- Kept free of activities and pollutants that reduce the buffer's ecological functions.
- Established to contain adequate width to reduce the negative interactions between adjacent land uses and ecological functions. Buffers may range from 15m – 100m, depending on site-specific situations and function; buffers are typically measured from the top of the bank landward, unless otherwise stated.
- Included as mitigation, in addition to the area of wetland and/or riparian habitat.
- Considered on a case-by-case basis, focusing on the connections between riparian communities and adjacent upland core resources, in order to maintain the interactions between communities, and to assure long-term conservation of riparian species, upland species dependent on riparian areas for foraging or breeding, and/or for riparian species that utilize the transitional and adjacent uplands during their life cycles.

For the SAMP/MSAA, consideration is being given to site constraints and intended function of the buffers. Generally, based on a review of the scientific literature the following three different buffer widths will serve as a guide:

- For general water quality concerns, a 15-meter vegetated buffer should minimize effects from sediment and other pollutants (Budd and others 1987; Castelle and others 1992; Cohen and others 1987; Jacobs and Gilliam 1985; Woodward and Rock 1995).
- For effects to sensitive aquatic species such as benthic macroinvertebrates, a 30-meter vegetated buffer should protect aquatic ecosystem processes (Erman and others 1977; Hickman and Raleigh 1982; Jones and others 1988; Moring 1982; Newbold and others 1980; Raleigh 1982; Raleigh and others 1984). A 30-meter vegetated buffer would be unnecessary in areas expected to be without sensitive benthic macroinvertebrates, such as ephemeral streams.

- For effects to wildlife, a 100-meter buffer should protect a large number of species from indirect effects from noise, sound, and pollution. Although less sensitive species may be better adapted to areas without such extensive buffers, certain sensitive and/or larger wildlife species that use riparian corridors may need wider buffers. The wildlife management literature typically uses a 100-meter buffer to protect general wildlife concerns (Jones and others 1988).

8. Protect Riparian Areas and Associated Habitats Supporting Federally and State-Listed, Sensitive Species and their Critical Habitat

Impacts to riparian reaches known to support wildlife with special status as federally and state-listed species and species of concern should be avoided. For example, if a particular sensitive species uses upland habitats for foraging, dispersal, overwintering, etc., adequate connectivity for the utilization of the upland habitat should be maintained. Occupied and potential occupied habitats of listed and sensitive species should be provided buffers from adjacent land-uses and activities. Upstream and tributary areas should be modified only to avoid adverse effects to the abiotic and biotic factors supporting the species habitat, as well as temporal and stochastic events (e.g., seasonal flooding).

Several species, including the state and federally endangered least Bell's vireo and southwestern willow flycatcher, and the State Species of Special Concern, the southwestern pond turtle, are dependent on riparian ecosystems for their survival. Buffer widths may vary according to specific species, activities, and on-site minimization measures. For example, buffers were considered as follows for the following species:

- Least Bell's Vireo – maintain a buffer around the riparian vegetation polygons within which point data exist for this species.
- Southwestern Willow Flycatcher – maintain a buffer around the riparian vegetation polygons for which sufficient point data exist for this species, as well as around areas (polygons) of mature riparian vegetation suitable for this species (e.g., mature riparian woodland) whether sufficient data exist.
- Southwestern Pond Turtle – limit the activities to occur in a drainage basin of a reach within which there are occurrence data for this species.

III. Identification of Lands Potentially Eligible for SAMP/MSAA Abbreviated Permitting Program

As part of the SAMP/MSAA process, the Corps and Department anticipate proposing a new watershed-specific permitting strategy that will differentiate among aquatic resources of greater and lesser conservation value. Under the SAMP/MSAA, increased or decreased permit evaluation time would be based on whether permit actions would affect aquatic habitats targeted for conservation or less sensitive resources, respectively. This section identifies those areas that the Corps and Department, based on information accumulated thus far, currently anticipate may be eligible for evaluation under an abbreviated SAMP/MSAA permitting process. The Corps and the Department caution that these areas could change as a result of further public review and the EIS/EIR process.

The potential implication for projects located in areas of lesser long-term conservation value is that future applications for permits and agreements for authorizations may be subject to a more abbreviated review process if they were demonstrated to be in compliance with the SAMP/MSAA conditions. In contrast, applications for projects affecting aquatic resources of greater long-term conservation value may be subject to a consideration under standard permitting and agreement procedures, subject to limitations that may be imposed as part of the SAMP/MSAA process. The Corps and the Department also anticipate that aquatic resources of greater conservation value will be targeted for conservation and long-term management of aquatic resources under an aquatic resources conservation plan. The Corps and the Department are still developing the details of that plan.

In addition, the SAMP/MSAA has evaluated ("Evaluation") two broad categories of land that are relevant to riparian ecosystems: aquatic resources and upland areas of influence, including vegetated buffers. Upland areas of influence are represented as drainage basin/local drainage area, i.e., the sub-watershed unit of land that drains to a particular stream reach through surface flows. Distinguishing between different land types allows for an integrated management approach that addresses a gradient of direct and indirect effect to aquatic resources.

Aquatic Resources – The Evaluation focuses on the aquatic resources, i.e., WoUS and lakes, rivers and streams, which include, but are not limited to riparian ecosystems,

ephemeral drainages, and marshes and other wetland types, identified as being of high resource value to the Watershed and for inclusion in the Evaluation.

Upland Areas of Influence – Both the local drainage area and drainage basin of a riparian reach extend beyond the boundaries of the Corps and the Department’s jurisdictions, and includes any vegetated buffer. Yet, the local drainage and drainage basins constitute the upland areas of influence on the aquatic resources by directly contributing flows over the uplands into the riparian reach, thereby affecting the hydrologic, water quality, and habitat integrity of the receiving aquatic resources. For purposes of understanding and evaluating the existing and potential stressors upon aquatic resources, the methodologies used for the SAMP/MSAA acknowledged the influence and incorporated certain indicators of integrity at the local drainage and drainage basin scales.

The SAMP/MSAA program will identify specific management strategies for vegetated buffer zones located within areas of high resource value that could be implemented as part of the SAMP/MSAA. Vegetated buffer zones are a subset of upland areas of influence. They ensure protection of the core aquatic resources provide a transition area between active upland land uses and the associated aquatic resources. Consequently, the Evaluation addresses the need for vegetated buffers of varying widths from 15 m to 100 m, depending on the particular site and the buffer function such as water quality benefits, protection of habitat, or as a wildlife corridor, etc., as a complementary zone adjacent to the jurisdictional aquatic resources.

A. Criteria for Identification

Using the data obtained through the baseline reports, the Corps and the Department developed a set of watershed-specific criteria to help identify areas of high resource value to the Watershed. The criteria were based on the goals of the SAMP/MSAA for aquatic resource protection identified in the SAMP Tenets. High quality areas were identified by applying the criteria to different themes in a GIS program. Selected criteria (1, 2, 4, 5, and 6) were used to identify areas as having greater conservation value at the watershed scale. Other criteria (3, 7, and 8) were used to identify areas where their protection was not expected to improve the overall integrity of aquatic resources, as evaluated at a watershed scale.

1. Criterion 1 – Protect Local Drainages of Riparian Reaches with a Medium to High Level of Hydrologic, Water Quality, and Habitat Integrity

Identification of the areas of high resource value began with the addition of the local drainage areas for riparian reaches with two, or more, integrity indices above the natural break point between moderate and low integrity indices on a graph plotting riparian reaches (x axis) against integrity index (y axis). This criterion selected 160, or 84%, of the 189 riparian reaches in the Watershed. Since the local drainages vary in size, this did not necessarily translate into 84% of the total area of the Watershed.

The local drainage areas of riparian reaches were initially identified to ensure protection to the maximum extent of the area contributing to the integrity of a riparian reach. This area (local drainage basin) was further reduced based on existing adjacent land use.

2. Criterion 2 – Protect Headwater Local Drainage Basins

Headwater local drainage basins are local drainages with first order streams discharging to second order streams. The remaining headwater local drainage basins in this Watershed are protected exclusively as part of the existing Orange County Central-Coastal Natural Community Conservation Plan (NCCP) Subregional Reserve system. Therefore, the remaining headwater local drainage basins were identified as high quality areas.

3. Criterion 3 – Remove Areas with a Land Use/Land Cover Designation of "Developed with 15% Impervious Surfaces"

Developed areas (>15% impervious land use/land cover designation) were not included as high quality areas. The areas generated at this level include areas where the adjacent land use is fully developed. Because change of existing land use/land cover is neither a goal of the SAMP nor feasible for the purposes of the plan, the areas that had >15% impervious surfaces were removed from further consideration for inclusion in the Evaluation. However, given that habitat may be present in the more urbanized reaches to provide value to species of concern, or future restoration efforts may alter sited conditions and restore function deficient under baseline conditions, selected areas can be added on a case-by case basis.

4. Criterion 4 – Protect Aquatic Resources and Associated Upland Habitat Currently Supporting Federally and State-Listed as Endangered or Threatened and State's Sensitive Species

ArcView themes were developed from data supplied by the USFWS that indicated observation points of Arroyo Toad, Southwestern Pond Turtle, Least Bell's vireo, Yellow Breasted Chat, and rare wetland plants. For this analysis, it was assumed that each data point represented a verified observation of an individual animal or plant. The area of habitat included was based on a 50-meter radius buffer (i.e., 7,850 sq ft) created around each observation point. The observation points are located throughout the Watershed and not only in the riparian reaches.

5. Criterion 5 – Protect Aquatic Resources Designated As Critical Habitat

ArcView themes developed for this analysis were based on data supplied by the USFWS indicating critical habitat for Arroyo Toad, Riverside Fairy Shrimp, San Diego Fairy Shrimp, and California Gnatcatcher. All critical habitat areas for these species were included.

6. Criterion 6 – Enhance Ecosystem Functions of Currently Protected NCCP Reserve System and other Public Open Spaces

This criterion was applied by protecting local drainage basins of low integrity riparian reaches and/or non-riparian and undeveloped areas, such as public open spaces and the NCCP reserve system, with potential for restoration to serve as aquatic corridors connecting existing protected riparian ecosystems. The following areas were included as areas of greater conservation value:

- Areas currently providing a low level of riparian ecosystem integrity (Hydrologic, Water Quality, and Habitat); and
- Areas currently not containing any aquatic resources but possessing sufficient undeveloped land use where an aquatic feature can be created to serve as a corridor connecting the existing protected natural open spaces.

7. Criterion 7 – Designated Buffer in Agricultural Land Use Areas

The local drainage basins for areas with the designated land use/land cover of “agricultural” were reduced to an approximately 20-meter buffer total width (generally included

non-vegetated ephemeral and intermittent drainages), and 60-meter buffer on wetlands (generally included vegetated intermittent and perennial drainages and any adjacent wetlands).

Data provided by the Irvine Company were used to update the existing land uses in the Corps' database. Within the Watershed, all areas with a land use/land cover designation of "agricultural" were removed from consideration as high quality areas, with the exception of a 20-meter buffer (total width) around non-wetland waters, and 60-meter buffer (total width) around wetlands.

8. Criterion 8 – Exclusion of Disconnected Reaches in Agricultural Areas

Riparian reaches were removed from consideration as high quality areas if they met all three of the following conditions:

- Located in areas with land use/land cover designations of agriculture;
- Scored in the low range of all integrity indices; and
- Were disconnected upstream and downstream from riparian ecosystems or areas of high resource value by 30 meters or greater.

This purpose of this criterion is to remove riparian reaches that would provide minimal wildlife movement opportunities (see Glossary for further discussion under "Habitat Integrity").

9. Other Considerations

In addition to the specific criteria described above, other issues were given consideration in the process of identifying areas eligible for the SAMP/MSAA permitting. Portions of local drainage basins associated with planned development projects were included as SAMP/MSAA eligible areas based on an iterative pre-application review process and discussions among landowners, local jurisdictions, and the resource agencies. In the case where medium to higher value aquatic resources and associated local drainage basins were located within areas planned for development in accordance with local general plans, the resource agencies requested project modifications to avoid impacts in specific areas by decreasing the footprint of planned

development and to minimize impacts by reducing surface runoff inputs into aquatic resources from the developed area.

B. Designation of Areas Eligible for SAMP/MSAA Abbreviated Permitting Procedures

As described above, through the SAMP/MSAA's comprehensive studies on the location and quality of aquatic resources within the San Diego Creek Watershed, the Corps identified natural or near natural areas, which contain higher quality aquatic resources (Figure 2). These areas include aquatic resources with medium to high hydrologic, water quality, and/or habitat integrity; aquatic resources providing habitat for wildlife, including threatened and endangered species; and headwater stream systems. Through this SAMP/MSAA process, the agencies and the local participating applicants have engaged in efforts to avoid impacts to higher-value aquatic resources.

Within the watershed, the Corps shall propose that certain areas will be eligible for a SAMP/MSAA abbreviated permitting procedures and other areas will not. As described above (Section III.A.), aquatic resources were evaluated for their contribution towards developing a comprehensive aquatic resources conservation program. Generally, low integrity and highly degraded resources, which did not satisfy the identification criteria for conservation would be eligible for the abbreviated permitting procedures.

In contrast, natural or near natural areas with aquatic resources of medium to high integrity for hydrology, water quality, or habitat were the focal point for protection under an aquatic resources conservation program, as described above (Section III.A.). Associated terrestrial habitats within these local drainages and drainage basins were included for protection because of their indirect contribution to the integrity of the receiving aquatic resources. These areas include the vast majority of aquatic resources within the Watershed. Of the 2,552 acres of aquatic resources, including 1,666 acres of riparian habitat delineated in the Watershed, about 1,642 acres (65%), including 1,074 acres (64%) of riparian habitat, are generally ineligible for abbreviated permitting. Of the 570 acres of high quality riparian habitat (rating at least 70% of the maximum score for hydrology, water quality, or habitat integrity as determined by the LLFA), about 510 acres (89%) may not be eligible. Of the 959 acres of high and medium quality

riparian habitat (rating at least 40% of the maximum score for hydrology, water quality, or habitat integrity as determined by the functional assessment), about 780 acres (81%) may not be eligible. In addition, certain activities within the major stream systems, such as Serrano Creek, Borrego Canyon Wash, San Diego Creek, and Peter's Canyon Wash are ineligible for the abbreviated permitting procedures. The areas on Figure 2 represent a combination of aquatic habitats and associated terrestrial habitats within the contributing upland areas that the Corps and the Department anticipate will not be eligible for SAMP/MSAA permitting procedures.

Since the conservation of riparian ecosystems is a particular focus of the SAMP/MSAA, riparian habitats were assessed also at the subwatershed scale. As described above, the subwatershed is a discrete geographical and topographical unit by which to review the potential for riparian habitat protection. Figure 3 shows the subwatersheds in the Watershed. Table 1 provides a comparison between the baseline of all riparian resources of high and medium integrity within a subwatershed, as determined using the functional assessment methodology (Smith 2000), and those riparian resources identified as ineligible. Table 2 gives a broader inventory of various habitat types of aquatic resource and their associated riparian and terrestrial habitats found within the Watershed.

Table 1. Riparian habitat resources within of the Watershed shown according to subwatershed and in descending order for number of acres of baseline high and medium integrity riparian habitat.

	Existing Riparian					Riparian Habitat in Areas Ineligible for SAMP/MSAA Abbreviated Permitting					
	Total		High Integrity		High and Medium Integrity	Total		High Integrity		High and Medium Integrity	
	Acres	Acres	% ¹	Acres	% ¹	Acres	% ¹	Acres	% ²	Acres	% ³
Agua Chinon Wash	183	143	78%	183	100%	171	93%	143	100%	171	93%
Borrego Canyon Wash	169	128	76%	159	94%	142	84%	116	90%	138	87%
Sand Canyon Wash	171	15	9%	143	83%	149	87%	11	75%	125	88%
Serrano Creek	145	129	89%	138	95%	108	75%	105	81%	105	76%
Bonita Creek	132	5	3%	75	57%	101	77%	5	100%	56	75%
San Diego Creek	404	20	5%	74	18%	213	53%	14	68%	44	59%
Bee Canyon Wash	56	28	51%	44	79%	48	86%	28	100%	38	88%
Bommer Canyon	44	36	82%	39	88%	40	89%	35	97%	37	94%
Hicks Canyon Wash	32	19	59%	31	96%	19	60%	18	98%	18	60%
Shady Canyon	29	29	100%	29	100%	22	75%	22	75%	22	75%
Laguna Canyon	31	13	42%	14	45%	16	51%	10	74%	10	76%
Peters Canyon Wash	69	0	0%	9	12%	19	28%	0	0%	5	61%
Little Joaquin Valley	7	0	0%	7	100%	0	0%	0	0%	0	0%
Rattlesnake Canyon Wash	32	3	9%	7	22%	6	19%	3	95%	4	54%
Univ. of California–Irvine	6	1	26%	6	100%	4	68%	1	96%	4	68%
Marshburn Channel	11	0	3%	2	19%	0	4%	0	100%	0	23%
San Joaquin Channel	24	1	2%	2	8%	10	43%	1	87%	2	79%
Barranca Channel	20	0	0%	0	0%	0	0%	0	0%	0	0%
Como Channel	15	0	0%	0	0%	0	0%	0	0%	0	0%
El Modena-Irvine Channel	22	0	0%	0	0%	0	0%	0	0%	0	0%
Lane Channel	20	0	0%	0	0%	0	0%	0	0%	0	0%
San Joaquin Marsh	2	0	0%	0	0%	1	75%	0	0%	0	0%
Santa Fe Channel	14	0	0%	0	0%	0	0%	0	0%	0	0%
Trabuco Channel	29	0	0%	0	0%	4	12%	0	0%	0	100%
Totals	1666	570	34%	959	58%	1074	64%	510	89%	780	81%

¹ % of the total existing riparian habitat (e.g., 183 acres for Agua Chinon and 169 acres for Borrego)

² % of the total existing riparian habitat with high integrity (e.g., 143 acres for Agua Chinon and 128 acres for Borrego)

³ % of the total existing riparian habitat with high-medium integrity (e.g., 183 acres for Agua Chinon and 159 acres for Borrego)

Table 2. Aquatic resources for each subwatershed within the Watershed.

Subwatershed	Total Aquatic Resources	Within Areas Ineligible for SAMP/MSAA Abbreviated Permitting		Aquatic Resource ¹ Types Common to the Subwatershed
		Acres	%	
Agua Chinon Wash	191	178	93%	Coast Live Oak Woodland (89.8), Riparian Herb (24.2), Southern Willow Scrub (17.5), Mulefat Scrub (14.3), Intermittent Rivers and Streams (8.3), Coastal Freshwater Marsh (7.4), and Ephemeral Rivers and Streams (6.7)
Barranca Channel	21	0	0%	Flood Control Channels (19.1), Perennial Rivers and Streams (0.8), and Ephemeral Rivers and Streams (0.7)
Bee Canyon Wash	85	49	58%	Spreading Grounds and Detention Basins (18.2), Ephemeral Rivers and Streams (14.1), Riparian Herb (9.6), Coast Live Oak Woodland (9.6), and Southern Coast Live Oak Riparian Forest (9.1)
Bommer Canyon	44	41	93%	Coast Live Oak Woodland (13.5), Southern Sycamore Riparian Woodland (11.4), and Ephemeral Rivers and Streams (10.0)
Bonita Creek	151	96	64%	Spreading Grounds and Detention Basins (29.6), Southern Arroyo Willow Forest (25.1), Coast Live Oak Woodland (24.1), Coastal Freshwater Marsh (18.1), Mulefat Scrub (17.2), Southern Willow Scrub (14.0), Southern Sycamore Riparian Woodland (9.3), and Ephemeral Rivers and Streams (5.4)
Borrego Canyon Wash	175	148	85%	Coast Live Oak Woodland (77.6), Southern Coast Live Oak Riparian Forest (35.7), Ephemeral Rivers and Streams (34.7), Southern Sycamore Riparian Woodland (7.7), and Flood Control Channels (7.6)
Como Channel	16	0	0%	Flood Control Channels (15.1) and Open Water (1.2)
El Modena-Irvine Channel	23	0	0%	Flood Control Channels (21.9), Ephemeral Rivers and Streams (0.8), and Open Water (0.6)
Hicks Canyon Wash	35	21	60%	Flood Control Channels (9.7), Mulefat Scrub (8.7), Southern Coast Live Oak Riparian Forest (5.8), and Ephemeral Rivers and Streams (5.4)
Laguna Canyon	47	25	54%	Open Water (13.2), Flood Control Channels (9.1), Mulefat Scrub (6.2), Intermittent Rivers and Streams (6.1), and Southern Arroyo Willow Forest (5.0)
Lane Channel	20	0	0%	Flood Control Channels (20.0) and Ephemeral Rivers and Streams (0.2)
Little Joaquin Valley	10	2	24%	Ephemeral Rivers and Streams (5.8), Flood Control Channels (3.3), and Spreading Grounds and Detention Basins (0.5)
Marshburn Channel	12	0	1%	Flood Control Channels (8.8), Southern Willow Scrub (1.3), and Ephemeral Rivers and Streams (1.0)

Subwatershed	Total Aquatic Resources	Within Areas Ineligible for SAMP/MSAA Abbreviated Permitting		Aquatic Resource ¹ Types Common to the Subwatershed
		Acres	%	
Peters Canyon Wash	79	20	25%	Perennial Rivers and Streams (38.1), Spreading Grounds and Detention Basins (16.4), Open Water (8.3), and Flood Control Channels (7.6)
Rattlesnake Canyon Wash	95	12	13%	Open Water (44.7), Spreading Grounds and Detention Basins (14.2), Mulefat Scrub (9.0), Southern Willow Scrub (8.5), Flood Control Channels (6.2), and Fluctuating Shorelines (5.1)
San Diego Creek	554	214	39%	Perennial Rivers and Streams (171.7), Open Water (130.6), Southern Black Willow Forest (72.8), Riparian Herb (48.3), Southern Willow Scrub (33.4), Mulefat Scrub (31.9), Eucalyptus (19.4), Southern Cottonwood-Willow Riparian Forest (10.7), Southern Arroyo Willow Forest (8.5), and Ephemeral Rivers and Streams (5.7)
San Joaquin Channel	27	16	58%	Flood Control Channels (15.7), Unclassified (5.9), and Ephemeral Rivers and Streams (5.5)
San Joaquin Marsh	487	464	95%	Coastal Freshwater Marsh (264.2), Open Water (110.0), Southern Black Willow Forest (54.6), Annual Grassland (33.9), and Vineyards and Orchards (16.9)
Santa Fe Channel	14	0	0%	Flood Control Channels (13.8), Ephemeral Rivers and Streams (0.5), and Perennial Rivers and Streams (0.1)
Sand Canyon Wash	214	191	89%	Southern Arroyo Willow Forest (54.7), Ruderal (52.4), Open Water (51.8), Southern Sycamore Riparian Woodland (13.4), Southern Coast Live Oak Riparian Forest (10.9), Mulefat Scrub (6.4), Annual Grassland (6.1), Southern Willow Scrub (6.1), and Ephemeral Rivers and Streams (5.4)
Serrano Creek	149	112	75%	Southern Coast Live Oak Riparian Forest (50.0), Coast Live Oak Woodland (39.9), Southern Willow Scrub (31.3), Southern Sycamore Riparian Woodland (6.2), Mulefat Scrub (5.1), and Ephemeral Rivers and Streams (5.0)
Shady Canyon	29	22	75%	Southern Sycamore Riparian Woodland (10.9), Southern Willow Scrub (6.3), and Southern Coast Live Oak Riparian Forest (3.8)
Trabuco Channel	68	27	40%	Flood Control Channels (20.4), Spreading Grounds and Detention Basins (20.3), and Open Water (19.0)
University of California–Irvine	6	3	50%	Mulefat Scrub (4.8), Southern Willow Scrub (1.0), and Ephemeral Rivers and Streams (0.6)
Totals ²	2552	1641	64%	

¹ Habitat types represent natural and non-native types comprising at least 5 acres within a subwatershed, or the predominant three habitats within the subwatershed. The types described here are not inclusive of all the types of aquatic resources observed in the subwatershed.

² Due to rounding of significant figures, sum of subwatershed acreages may not equal total acreage.

The condition of each subwatershed listed in Tables 1 and 2 is described in more detail below.

Agua Chinon Wash - The Agua Chinon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly non-urbanized, particularly upstream of the Foothill Transportation Corridor. Downstream of the Foothill Transportation Corridor, the subwatershed is moderately urbanized, with most of the area occupied by portions of the former El Toro Marine Corps Air Station. The subwatershed has 191 acres of riparian and other aquatic resources, including coast live oak woodlands, riparian herb, southern willow scrub, and mulefat scrub. Due to the high integrity of most of the aquatic resources, 178 acres (93%) were identified as likely ineligible for abbreviated permitting procedures.

Barranca Channel – The Barranca Channel subwatershed originates near the Marine Corps Air Station in the City of Tustin and drains southeasterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized, with little native vegetation cover remaining. The subwatershed has 21 acres of aquatic resources, including flood control channels, perennial streams, and ephemeral streams. Due to the low integrity of the aquatic resources and urbanized setting within the watershed, activities in this area likely would be eligible for abbreviated permitting procedures.

Bee Canyon Wash – The Bee Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. Although upstream of the Foothill Transportation Corridor the subwatershed is mostly non-urbanized, the Bee Canyon Landfill represents a substantial land disturbance. Furthermore, downstream of the Foothill Transportation Corridor, the subwatershed is moderately urbanized, with most of the area occupied by portions of the former El Toro Marine Corps Air Station. Large portions of the middle reaches are within agricultural production. The subwatershed has 85 acres of riparian and other natural and constructed aquatic resources, including spreading grounds and detention basins, ephemeral streams, riparian herb, and coast live oak woodlands. Due to the moderate integrity of most of the aquatic resources within the subwatershed, 49 acres (58%) were identified as likely ineligible for abbreviated permitting procedures.

Bommer Canyon – The Bommer Canyon subwatershed originates in the San Joaquin Hills and drains northerly into the Sand Canyon Wash subwatershed. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the Turtle Rock community. The subwatershed has 44 acres of riparian and other aquatic resources, including coast live oak woodlands, southern sycamore riparian woodlands, and ephemeral streams. Due to the high integrity of most of the aquatic resources, 41 acres (93%) were identified as likely ineligible for abbreviated permitting procedures.

Bonita Creek – The Bonita Creek subwatershed originates in the San Joaquin Hills and drains northwesterly into the San Diego Creek subwatershed near Upper Newport Bay. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the northern and western areas along the San Joaquin Toll Road. The subwatershed has 151 acres of riparian and other aquatic resources, including spreading grounds and detention basins, southern arroyo willow forest, coast live oak woodlands, coastal freshwater marsh, and mulefat scrub. Due to the moderate integrity of most of the aquatic resources, 96 acres (64%) were identified as likely ineligible for abbreviated permitting procedures.

Borrego Canyon Wash – The Borrego Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Agua Chinon Wash subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas within the Lomas de Santiago foothills and within the El Toro National Wildlife Refuge. The subwatershed has 175 acres of riparian and other aquatic resource habitats, including coast live oak woodlands, southern coast live oak riparian forests, ephemeral streams, and southern sycamore riparian woodlands. Due to the high integrity of most of the aquatic resources, 148 acres (85%) were identified as likely ineligible for abbreviated permitting procedures.

Como Channel – The Como Channel subwatershed originates in central Watershed and drains westerly into the Peters Canyon Wash subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has 16 acres of aquatic resources, including flood control channels and open water. Due to the low integrity and fragmentation of the aquatic resources, activities in this area likely would be eligible for abbreviated permitting procedures.

El Modena-Irvine Channel – The El Modena-Irvine Channel subwatershed originates in northern Watershed within the City of Tustin and drains southerly into the Peters Canyon Wash subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has 23 acres of aquatic resources, including flood control channels, ephemeral streams, and open water. Due to the low integrity and fragmented nature of the aquatic resources, activities in this area likely would be eligible for abbreviated permitting procedures.

Hicks Canyon Wash – The Hicks Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Peters Canyon Wash subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas within the Lomas de Santiago foothills and some agricultural areas interspersed throughout the subwatershed. The subwatershed has 35 acres of riparian and other aquatic resource habitats, including flood control channels, mulefat scrub, and southern coast live oak riparian forest. Due to the moderate integrity of most of the aquatic resources, 21 acres (60%) were identified as likely ineligible for abbreviated permitting procedures.

Laguna Canyon – The Laguna Canyon subwatershed originates in the San Joaquin Hills and drains northerly into the San Diego Creek subwatershed. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the northern and western areas. Interspersed across the subwatershed are agricultural lands. The subwatershed has 47 acres of riparian and other aquatic resource habitat types, including open water (Laguna Reservoir), flood control channels, and mulefat scrub. Due to the moderate integrity of the aquatic resources, 25 acres (54%) were identified as likely ineligible for abbreviated permitting procedures.

Lane Channel – The Lane Channel subwatershed originates in western Watershed within the City of Santa Ana and drains southeasterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has 20 acres of aquatic resources, including flood control channels and ephemeral streams. Due to the low integrity and fragmentation of the aquatic resources, activities in this area likely would be eligible for abbreviated permitting procedures.

Little Joaquin Valley – The Little Joaquin Valley subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Peters Canyon Wash subwatershed. The subwatershed is mostly agricultural, with some natural habitat areas remaining within the upper Lomas de Santiago foothills. The subwatershed has 10 acres of riparian and other aquatic resources, including ephemeral streams, flood control channels, and spreading grounds and detention basins. Due to the low integrity of most of the aquatic resources, 2 acres (24%) were identified as likely ineligible for abbreviated permitting procedures.

Marshburn Channel – The Marshburn Channel subwatershed originates in the lower Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly agricultural, with some urban areas. The subwatershed has 12 acres of riparian and other aquatic resources, including flood control channels, southern willow scrub, and ephemeral streams. Due to the generally low integrity and fragmented nature of most of the aquatic resources, much of the area was identified as likely eligible for abbreviated permitting procedures, while a small portion (1%) was identified as likely ineligible for abbreviated permitting procedures.

Peters Canyon Wash – The Peters Canyon Wash subwatershed originates in Peters Canyon Regional Park and drains southerly into the San Diego Creek subwatershed. This subwatershed is mostly urbanized, with some scattered natural areas within Peters Canyon Regional Park. The subwatershed has 79 acres of riparian and other aquatic resources, including perennial streams, spreading grounds and retention basins, open water, and flood control channels. Due to the low integrity of most of the aquatic resources, much of the area was identified as likely eligible for abbreviated permitting procedures, while 20 acres (25%) were identified as ineligible for abbreviated permitting procedures.

Rattlesnake Canyon Wash – The Rattlesnake Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Peters Canyon Wash subwatershed. The subwatershed is mostly agricultural, with some natural areas within the upper Lomas de Santiago foothills. The subwatershed has 95 acres of riparian and other aquatic resources, including open water (Rattlesnake Reservoir), spreading grounds and detention basins, mulefat scrub, and southern willow scrub. Due to the low integrity of most of the aquatic

resources, much of the area was identified as likely eligible for abbreviated permitting procedures, while 12 acres (13%) were identified as likely ineligible for abbreviated permitting procedures.

San Diego Creek – The San Diego Creek subwatershed originates in eastern Watershed and drains in a generally westerly direction until it empties into Upper Newport Bay. The subwatershed is mostly urbanized, with the only remaining non-urbanized areas located just upstream of the I-405 freeway crossing. This subwatershed includes large residential and commercial areas from the headwaters down to the outlet at Upper Newport Bay. The subwatershed has 554 acres of riparian and other aquatic resources, including perennial streams, open water, southern black willow forest, riparian herb, and southern willow scrub. Due to the moderate integrity and urbanized setting of the aquatic resources, 214 acres (39%) were identified as likely ineligible for abbreviated permitting procedures.

San Joaquin Channel – The San Joaquin Channel subwatershed originates in the San Joaquin Hills and drains westerly into the San Diego Creek subwatershed near Michelson Avenue. The subwatershed is highly urbanized, with most of the urbanization concentrated downstream along the I-405 corridor. Agricultural lands are interspersed within the upper subwatershed near Laguna Reservoir. The subwatershed has 27 acres of riparian and other aquatic resource habitats, including open water, flood control channels, and ephemeral streams. Due to the moderate integrity and urbanized setting of most of the aquatic resources, 16 acres (58%) were identified as likely ineligible for abbreviated permitting procedures.

San Joaquin Marsh – The San Joaquin Marsh (Marsh) is located in the southwestern portion of the Watershed. Although the Marsh is located next to San Diego Creek, the natural hydrology has been altered such that it is disconnected from any natural creek hydrology and is primarily comprised of non-riverine aquatic resource habitat types. The Marsh itself exists in a non-urbanized state within an urban context, and as a combination of protected wetlands and constructed water treatment system wetlands. The Marsh is comprised of 487 acres of riparian and other aquatic resource habitats, including coastal freshwater marsh, open water, and southern black willow forest. Due to the moderate integrity of most of the aquatic resources and the regional significance of the wetland habitat, 464 acres (95%) were identified as likely ineligible for abbreviated permitting procedures.

Sand Canyon Wash – The San Canyon Wash subwatershed originates in the San Joaquin Hills and drains northwesterly into the San Diego Creek subwatershed near Campus Drive. The subwatershed is moderately urbanized, with much of the urbanization concentrated downstream along University Drive. The subwatershed has 214 acres of riparian and other aquatic resource habitats, including southern arroyo willow forest, southern sycamore riparian woodland, and southern coast live oak riparian forest, ruderal, and open water (Sand Canyon Reservoir). Due to the high integrity of most of the aquatic resources, 191 acres (89%) were identified as likely ineligible for abbreviated permitting procedures.

Santa Fe Channel – The Santa Fe Channel subwatershed originates in western Watershed within the cities of Santa Ana and Tustin and drains southeasterly into the San Diego Creek subwatershed. This subwatershed is mostly urbanized, with little native vegetation cover. The subwatershed has 14 acres of aquatic resource habitats, including flood control channels and ephemeral streams. Due to the low integrity and fragmented nature of the aquatic resources, activities in this area likely would be eligible for abbreviated permitting procedures.

Serrano Creek – The Serrano Creek subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas occurring within the Lomas de Santiago foothills and along the middle reaches. The subwatershed has 149 acres of riparian and other aquatic resources or associated terrestrial habitat types, including southern coast live riparian forest, southern coast live oak woodland, southern willow scrub, and southern sycamore riparian woodlands. Due to the high integrity of most of the aquatic resources, 112 acres (75%) were identified as likely ineligible for abbreviated permitting procedures.

Shady Canyon – The Shady Canyon subwatershed originates in the San Joaquin Hills and drains northwesterly into the Sand Canyon Wash subwatershed. The subwatershed is slightly urbanized, with most of the urbanization concentrated just upstream of Sand Canyon Reservoir. The subwatershed has 29 acres of riparian and other aquatic resources, including southern sycamore riparian woodlands, southern willow scrub, and southern coast live oak riparian forest. Due to the high integrity of most of the aquatic resources, 22 acres (75%) were identified as likely ineligible for abbreviated permitting procedures.

Trabuco Channel – The Trabuco Channel subwatershed originates in central Watershed near the Siphon Reservoir and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized with agricultural production in the upstream areas. The subwatershed has 68 acres of aquatic resources, including flood control channels, spreading grounds and detention basins, and open water (Siphon Reservoir). Due to the moderate integrity of the aquatic resources, 27 acres (40%) were identified as likely ineligible for abbreviated permitting procedures.

University of California, Irvine – The University of California, Irvine (UCI) subwatershed encompasses the UCI campus and its surrounding environs. The subwatershed is moderately urbanized with the campus facilities and associated infrastructure. The subwatershed has 6 acres of riparian and other aquatic resource habitats, including mulefat scrub, southern willow scrub, and ephemeral streams. Due to the moderate integrity of most of the aquatic resources, about 3 acres (50%) were identified as likely ineligible abbreviated permitting procedures.

IV. Interim Permit Evaluation Considerations

The Corps and Department's existing, conventional permitting approaches, i.e., permit-by-permit review does not readily allow for a project to be evaluated with watershed-wide perspective. In contrast, the San Diego Creek Watershed SAMP/MSAA process has enabled the agencies and participating applicants to gain a better understanding of the aquatic resources and improve the ability to balance the priorities of aquatic resource protection and reasonable development with a broader watershed perspective. As such, the Corps and the Department believe the SAMP/MSAA provides a contextual framework to implement a modified permitting and mitigation program.

Specifically, as part of the San Diego Creek Watershed SAMP/MSAA program, the Corps and the Department shall propose a watershed-specific permitting system and a coordinated mitigation policy by which authorization of unavoidable discharges of dredged and/or fill materials into WoUS may be permitted within the geographic boundaries of the SAMP study area. Evaluation of projects would be considered in terms of the goals for

effectively protecting and restoring aquatic resources of greater conservation value through implementation of a comprehensive aquatic resources conservation program. Such a comprehensive program would provide additional protections to aquatic resources of greater conservation value, while minimizing delays for projects proposing to impact aquatic resources of lesser conservation value. Accordingly, a coordinated San Diego Creek Watershed SAMP/MSAA permitting and mitigation program shall recognize specific areas identified as containing resources of lower conservation value, whereby certain classes of activities affecting these areas may be eligible for an abbreviated permitting process. (The comprehensive San Diego Creek Watershed SAMP/MSAA program shall be proposed for implementation and described in greater detail in the forthcoming draft Joint EIS/EIR and its accompanying Special Public Notices.)

At the start of the SAMP/MSAA process, participating applicants agreed to subject their projects to detailed review and revisions with the anticipation that a SAMP would be completed before they submit applications for their projects, i.e., they undertook an extensive pre-application process. However, substantial delays in completing the SAMP/MSAA have occurred, and prior to the completion of final SAMP/MSAA documents, the participating applicants wish to submit applications for some of their known projects while complying with the intent and principles of the SAMP/MSAA. In response, the Corps and the Department have prepared this document to inform SAMP/MSAA participating applicants and prospective applicants as to the watershed-specific factors that will influence the Corps and the Department when considering authorizations under Section 404 of the Clean Water Act and Section 1600 of the California Department of Fish and Game Code.

The information provided herein outlines factors that will influence whether the Corps would consider a project located within the geographic boundaries of the SAMP study area consistent with the San Diego Creek Watershed SAMP/MSAA process. During the interim until such date as the SAMP/MSAA is completed, and a watershed-specific permitting program and mitigation policy is finalized, the information obtained through the San Diego Creek Watershed SAMP/MSAA process will be taken into consideration and will build upon existing regulations. In other words, applicants are expected to comply with all existing regulations under Section 404 of the Clean Water Act and Section 1600 of the California Fish and Game

Code, and the Corps will consider additional factors in evaluating applications for projects located within the San Diego Creek Watershed SAMP study area.

The Corps has greater information on which to base its evaluation of impacts to aquatic resources. The Corps anticipates that by taking into account the technical environmental information and analysis compiled to date, certain proposed activities may no longer be eligible for authorizations under our existing Nationwide Permit program (33 CFR 330). Applicants should be aware that the Corps may invoke, on a case-by-case basis, its discretionary authority to require applicants to undergo a Standard Individual Permit process rather than a Nationwide Permit process if a proposed project would have more than minimal effects (33 CFR 330.4(e)).

The following factors will influence the Corps decision-making process:

1. The conservation value of aquatic resources, as identified through the SAMP/MSAA studies, will be considered. Figure 2 illustrates the baseline conditions of watershed's aquatic resources, including those of greater conservation value.
2. In areas identified as having aquatic resources of greater conservation value (Figure 2), the availability of the Nationwide General Permit Program (33 CFR Part 330) will be reviewed by the Corps on a case-by-case basis, whereby the Corps may take discretionary authority to require a Standard Individual Permit review process in accordance with 33 CFR 330.4(e).
3. Documentation with respect to alternatives analysis (Smith 2003) and compensatory mitigation (Section V and Appendix A of this document) may be used to show satisfaction with Section 404 of the Clean Water Act (including the Section 404(b)(1) Guidelines) and Section 1600 of the Fish and Game Code. The alternative analysis is available at:
<http://www.spl.usace.army.mil/regulatory/samp/SDAltAnal/SDaltanal.html>.
4. Proposed projects that would affect aquatic resources with greater conservation value, or which are to be processed as Standard Individual Permit may be evaluated in terms of their consistency with the SAMP Tenets. Applicants wishing to demonstrate consistency with SAMP Tenets may address the SAMP Tenets explicitly and include a discussion of the following items: the applicability of each SAMP Tenet to the project; the extent of compliance with the SAMP Tenets; and propose any measures to mitigate for adverse effects with respect to each SAMP Tenet.
5. The Corps and the Department shall propose a mitigation framework as part of the draft EIS/EIR for the SAMP/MSAA (See Appendix A). The Corps encourages applicants to demonstrate compliance with the proposed SAMP/MSAA compensatory mitigation framework, which defines pre-set ratios based on functional integrity of impact area and proposed compensatory mitigation area.

6. The Corps, on a case-by-case basis, may elect to impose permit special conditions to minimize the potential direct and indirect effects of the project on aquatic resources. Participating and prospective applicants should familiarize themselves with the following Best Management Practices (BMPs), which include elaborations on existing general conditions of the Nationwide Permits (33 CFR 330.4):
 - a. Soil Erosion and Sediment Controls. Appropriate erosion and sedimentation controls, such as siltation or turbidity curtains, sedimentation basins, and/or hay bales or other means designed to minimize turbidity in the watercourse to avoid exceeding the background levels existing at the time of project implementation, should be used and maintained in effective operating condition during project implementation. Should site conditions preclude their use, or if conditions are such that the proposed work would not increase turbidity levels above the background level existing at the time of the work, then controls may not be necessary. However, during the rainy season, from October 15 through April 15, of the year the work is conducted, all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be stabilized at the earliest practicable date to preclude additional damage to WoUS through erosion or siltation from storm events.
 - b. Equipment. When practicable, and if personnel would not be put into any additional potential hazard, heavy equipment working in or crossing wetlands must be placed on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment. Temporary construction mats shall be removed promptly after construction.
 - c. Suitable Material. No discharge of dredged or fill materials may consist of unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
 - d. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain pre-project downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill materials must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to pre-project conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond pre-project conditions.
 - e. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions, including any native riparian and/or wetland vegetation. If an area impacted by such temporary fill is considered likely to naturally reestablish native riparian and/or wetland vegetation within two years to a level similar to pre-project or pre-event

conditions, the permittee will not be required to do restore the riparian and/or wetland vegetation.

- f. Preventive Measures. Measures must be adopted to prevent potential pollutants from entering the watercourse. Construction materials and debris, including fuels, oil, and other liquid substances, will not be stored in the project area in a manner as to prevent any runoff from entering jurisdictional areas.
- g. Staging of Equipment. Staging, storage, fueling, and maintenance of equipment must be located outside of the waters in areas where potential spilled materials will not be able to enter any waterway or other body of water.
- h. Fencing of Project Limits. Prior to initiation of the project, the boundaries of the project's impact area must be delimited by the placement of temporary construction fencing, staking, and/or signage. Any additional acreage impacted outside of the approved project footprint shall be mitigated at a 5:1 ratio. In the event that additional mitigation is required, the type of mitigation shall be determined by the Corps and may include wetland enhancement, restoration, creation, or preservation.
- i. Avoidance of Breeding Season. All work affecting waters must occur between September 15 and March 15 to avoid the bird nesting and breeding season. Work in waters may occur between March 15 and September 15 if bird surveys indicate the absence of any nesting birds within a 50-foot radius.
- j. Exotic Species Management. Invasive, exotic species, including but not limited to giant reed (*Arundo donax*), salt cedar (*Tamarix* spp.), and castor bean (*Ricinus communis*) must be removed from the project site. The project site must remain free from these non-native species for a period of five years from completion of the project.
- k. Site Inspections. The Corps must be allowed to inspect the site at any time during and immediately after project implementation. In addition, compliance inspections of all mitigation sites must be allowed at any time.
- l. Posting of Conditions. A copy of any Corps or Department permit conditions must be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request.
- m. Post-Project Report. Within 60 days of completion of impacts to waters, as-built drawings with an overlay of waters that were impacted and avoided must be submitted to the Corps. Post-project photographs must also be provided which document compliance with permit conditions.
- n. Water Quality. An individual Section 401 water quality certification must be obtained (see 33 CFR 330.4(c)). If a conditioned Section 401 water quality certification has been issued, unless the Corps indicates otherwise such conditions become part of the Corps 404 permit and the permittee must comply with the conditions.

- o. Coastal Zone Management. Where the project may affect the Coastal Zone, an individual California state coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)). If the California Coastal Commission included conditions as part of its project consistency determination, unless the Corps indicates otherwise such conditions become part of the Corps 404 permit and the permittee must comply with the conditions.
- p. Endangered Species. (a) No activity is authorized which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittee shall not begin work on the activity until notified by the Corps that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. (b) Authorization of an activity under a Corps permit does not authorize the take of a threatened or endangered species as defined under the federal Endangered Species Act. In the absence of a separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with an incidental take provision, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal “takes” of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the office of the U.S. Fish and Wildlife Service or their Internet site at <http://carslbad.usfws.gov>.
- q. Historic Properties. No activity that may affect historic properties listed, or eligible for listing, in the National Historic Register of Historic Places is authorized, until the Corps has complied with the National Historic Preservation Act. If the proposed activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the Corps that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the SHPO and the National Register of Historic Places.

V. Restoration Opportunities in the Watershed

The Corps and the Department’s standard operating procedures do not provide for an integrated approach to mitigation and do not typically seek to identify potential mitigation opportunities on a watershed scale. Compensatory mitigation required for permits and agreements is done on a case-by-case basis. Moreover, long-term protection, i.e., beyond the short-term maintenance and monitoring period, of the conservation values of mitigation areas is usually limited to providing legal protections over the land.

A principal goal of the SAMP/MSAA is to improve the functional value of the watershed's aquatic resources by providing these missing pieces and developing a watershed focused approach to mitigation and aquatic resource management. The Corps and the Department have used the SAMP/MSAA's baseline studies to identify moderately to substantially degraded riparian ecosystems that would upon restoration achieve specific Watershed conservation goals. (Aquatic resources requiring less-intensive enhancement activities to improve function would include many of the high- to moderate-integrity areas identified as ineligible for SAMP/MSAA permitting). Restoration of such sites would provide a functional lift to the Watershed for aquatic resources and help fulfill a conservation goal.

A two-step process requires identifying the restoration potential of each stream reach in the watershed as well as the level of effort necessary to restore specific stream reaches. Implementation of the restoration plan described here will help to achieve the goals of the Clean Water Act and the Fish and Game Code.

Priority riparian ecosystem restoration opportunities were identified by evaluating the numerous sites identified in the *Watershed Riparian Ecosystem Restoration Plan* (Restoration Plan) (Smith and Klimas 2004) using six additional criteria. These criteria represent the resource agencies' priority conservation objectives for the watershed. The six criteria described in detail below (A-F) provided a mechanism for testing the effectiveness of various combinations of restoration actions at improving the functional integrity of the aquatic resources. Moreover, the criteria help to prioritize the restoration of stream reaches where the greatest functional improvement can be attained for a standardized unit of effort required.

A. Restore Connectivity of Aquatic Resources Located in the NCCP's Central and Coastal Reserves

Aquatic and terrestrial habitat resources within the NCCP reserve system's Central reserve and Coastal reserve are currently separated by urban development, including major highways, limiting biotic interactions such as seed dispersal, nutrient transport, and wildlife movement. Restoration efforts to provide or enhance blocks of riparian habitat along aquatic resources that traverse the more urbanized areas in between the Central and Coastal reserve lands would decrease habitat fragmentation and provide connection between the two reserve sub-areas. Improved connectivity between aquatic resources located within the Central

and Coastal reserves would allow individuals and their genetic material to disperse, thereby improving the long-term viability of wildlife population.

Restoring connectivity using riparian ecosystems requires continuous open channels. Between the NCCP's Central and Coastal reserve areas, all possible linear riparian connections were considered, including Peter's Canyon Wash, Marshburn Channel, Bee Canyon Wash, Agua Chinon Wash, Borrego Wash, and Serrano Creek. However, most of these possible solutions were determined to be infeasible for various reasons particular to each waterway. Under the City of Irvine's proposed Great Park Plan (City of Irvine, 2003), a wildlife corridor would be created along the eastern edge of the former El Toro Marine base. The wildlife corridor would be established by re-creating and daylighting drainages, planting native vegetation with a width of a minimum of 300 feet, increasing the size of culverts and other wildlife undercrossings, and maintaining some redundancy with continuous riparian corridors, which would offer secondary wildlife corridor values. Two other drainage corridors would be created, but not for the primary purpose of wildlife movement. These two drainage corridors would require daylighting drainages and revegetating with riparian species. Table 3 and Figure 4 show these two prospective restoration sites that could connect aquatic resources of the NCCP.

Table 3. Details of Prospective Restoration Sites Connecting Aquatic Resources Located in the Orange County Central-Coastal NCCP Subregional Reserve System.

ID	Priority	Subwatershed	Reach	Restoration Template	Length (m)	Notes
1	A	Borrego Canyon Wash/Agua Chinon Wash	BG-01, BG-02, BG-03	Unearthing	~4000	Great Park Wildlife Corridor
2	B	Agua Chinon Wash/Bee Canyon Wash	AC-01, AC-02	Unearthing	~2500	Great Park Drainage Corridor
3	B	Bee Canyon Wash	BE-02	Unearthing	~2500	Great Park Drainage Corridor

B. Restore Reaches within Surrounding Upland Conservation Areas

The second restoration objective is to restore riparian reaches where the adjacent upland areas and entire subbasins have been already set aside for permanent conservation through a separate, non-SAMP/MSAA process (i.e., public open space or NCCP reserve system). Conducting restoration work in areas already preserved could allow the aquatic

resource restoration areas to receive long-term protection under existing conservation and management obligations.

Forty-eight reaches within NCCP reserve system and other open space areas satisfied this restoration objective (Figure 5). Restoration typically involves more than enhancement by planting; it would bring degraded systems into a fully functioning state. Some reaches are within natural upland habitat and others are within non-native habitats such as windrows and orchards. Because of the potentially significant impacts to sensitive upland habitats, restoration efforts should focus on restoring riparian reaches within non-sensitive uplands such as windrows and orchards. In addition, restoration should focus on riparian areas that would produce the most ecological benefit for the level of effort expended. Their status as potential restoration sites would be considered during the review of any application to impact these reaches.

Table 4 prioritizes restoration sites within existing upland conservation areas according to the ratio of the anticipated benefit to aquatic resources to the level of effort required to restore the site. Sites with the greatest functional boost are ranked higher. Sites are grouped into quartiles to show broad groupings. Sites labeled with priority levels of “c” and “d” are only slightly degraded and would experience less functional benefit from any restoration work than would be expected of sites labeled with priority levels of “a” and “b.”

Table 4. Details of prospective restoration sites in upland open space areas.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
1	a	Laguna Channel	LG-02-2	Natural	Light	736	Continuous with LG-02-1; adjacent to PA17 development
2	a	Borrego Canyon Wash	BG-12-2	Incised	Light	238	Adjacent to SR-241; continuous with BG-12-1
3	a	Hicks Canyon Wash	HK-03-1	Incised	Light	515	Continuous with HK-03-2
4	a	Hicks Canyon Wash	HK-03-2	Incised	Heavy	235	Continuous with HK-03-1
5	a	Rattlesnake Canyon Wash	RS-09-1	Incised	Light	988	Currently in agricultural production; upstream of PA1; continuous to RS-09-2
6	a	Rattlesnake Canyon Wash	RS-09-2	Incised	Heavy	552	Currently in agricultural production; upstream of PA1; continuous to RS-09-2
7	a	Rattlesnake Canyon Wash	RS-11-1	Incised	Light	343	Currently in agricultural production; upstream of PA1;
8	a	Trabuco Channel	TB-01-8	Incised	Light	210	Downstream of Siphon Reservoir

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
9	a	Borrego Canyon Wash	BG-13-2	Natural	Heavy	497	Upstream of SR-241; in alignment of future Portola Parkway extension
10	a	San Joaquin Channel	SJ-03-1	Natural	Light	720	Continuous with SJ-02b-1 and SJ-03-2; adjacent to PA17 development
11	a	San Joaquin Channel	SJ-03-2	Natural	Light	682	Continuous with SJ-03-1; adjacent to PA17 development
12	a	Trabuco Channel	TB-03-1	Natural	Light	335	Upstream of Siphon Reservoir
13	b	Bee Canyon Wash	BE-15-1	Incised	Light	826	Adjacent to Bowerman Landfill
14	b	Borrego Canyon Wash	BG-10-2	Incised	Light	773	Continuous with BG-11-1 and BG-12-1; identified as UNBWC ³ restoration site
15	b	Bommer Canyon	BM-04-1	Incised	Light	1129	Upstream end impacted by PA27 development
16	b	Bonita Creek	BO-09-1	Incised	Light	996	Downstream of San Joaquin Reservoir; identified as UNBWC ³ restoration site
17	b	Laguna Channel	LG-02-1	Incised	Light	451	Continuous with LG-02-2; adjacent to PA17 development
18	b	Marshburn Channel	MH-03b-2	Incised	Light	134	Upstream of SR-241; continuous with MH-03b-3
19	b	Rattlesnake Canyon Wash	RS-07-2	Incised	Heavy	606	Currently in agricultural production; upstream of PA1;
20	b	Sand Canyon Wash	SC-11a-2	Incised	Light	225	Continuous with SC-09-1; adjacent to PA22 development
21	b	Shady Canyon	SH-06-2	Incised	Light	455	Upstream of PA22 development
22	b	Borrego Canyon Wash	BG-14-2	Natural	Heavy	491	Upstream of SR-241; in alignment of future Portola Parkway extension
23	b	Sand Canyon Wash	SC-11b-2	Natural	Light	654	Upstream of SC-11a-2
24	b	San Joaquin Channel	SJ-02b-1	Natural	Light	675	Continuous with SJ-03-1; adjacent to PA17 development
25	c	Agua Chinon Wash	AC-09-2	Incised	Light	512	Upstream of SR-241
26	c	Bommer Canyon	BM-02d-1	Incised	Light	230	Continuous with BM-02c-1 and BM-05-1; between PA22 and PA27
27	c	Hicks Canyon Wash	HK-04a-1	Incised	Light	1641	Continuous with HK-041a-2
28	c	Hicks Canyon Wash	HK-04a-2	Incised	Light	837	Downstream of SR-241; continuous with HK-041a-1
29	c	Marshburn Channel	MH-03b-3	Incised	Light	309	Continuous with MH-03b-2
30	c	Rattlesnake Canyon Wash	RS-05-1	Incised	Light	976	Upstream of Rattlesnake Canyon Reservoir
31	c	Rattlesnake Canyon Wash	RS-08-2	Incised	Light	811	Downstream of SR-241
32	c	Shady Canyon	SH-01-1	Incised	Light	971	Restoration completed because of prior permit requirements
33	c	Shady Canyon	SH-04-1	Incised	Light	357	Upstream of PA22 development
34	c	Borrego Canyon Wash	BG-12-1	Natural	Light	1923	Within El Toro Wildlife Refuge; continuous with BG-10-2
35	c	Sand Canyon Wash	SC-05-2	Natural	Light	472	Continuous with SC-06-1; just upstream from Sand Canyon Res.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
36	c	Sand Canyon Wash	SC-09-1	Natural	Light	245	Continuous with SC-11a-2; adjacent to PA22 development
37	d	Agua Chinon Wash	AC-08-1	Incised	Light	722	Upstream of SR-241; in alignment of future Portola Parkway extension
38	d	Borrego Canyon Wash	BG-04a-1	Incised	Light	808	Affected by alignment of Alton Parkway; identified as UNBWC ³ restoration site
39	d	Borrego Canyon Wash	BG-04b-1	Incised	Light	398	Affected by alignment of Alton Parkway; identified as UNBWC ³ restoration site
40	d	Bommer Canyon	BM-02c-1	Incised	Light	362	Continuous with BM-02d-1; between PA22 and PA27
41	d	Bommer Canyon	BM-05-1	Incised	Light	1184	Continuous with BM-02d-1; between PA22 and PA27
42	d	Bonita Creek	BO-08-1	Incised	Light	638	Upstream of compensatory mitigation site; adjacent to SR-73
43	d	Peters Canyon Wash	PC-04-2	Incised	Light	1050	Within Peter's Canyon Regional Park; identified as UNBWC ³ restoration site
44	d	Sand Canyon Wash	SC-06-1	Incised	Heavy	410	Continuous with SC-05-2 and SC-08a-1; adjacent to PA22 development
45	d	Sand Canyon Wash	SC-08a-1	Incised	Light	829	Continuous with SC-06-1 and SC-08b-1; adjacent to PA22 development
46	d	Sand Canyon Wash	SC-08b-1	Incised	Light	516	Continuous with SC-08a-1 and SC-12-1; adjacent to PA22 development
47	d	Sand Canyon Wash	SC-12-1	Incised	Light	586	Continuous with SC-08b-1; adjacent to PA22 development
48	d	Borrego Canyon Wash	BG-11-1	Natural	Light	2383	Continuous with BG-10-2

¹ Best possible restoration outcome; "natural" templates allows for full restoration and "incised" templates allows for moderately incised conditions after restoration work is completed

² Amount of work needed; "light" earthwork requires less than 6 feet of excavation and "heavy" earthwork requires greater than 6 feet of excavation

³ Upper Newport Bay Watershed Committee

C. Restore Connectivity between High and/or Medium Integrity Resource Reaches

The third restoration objective is to restore local connectivity between high and medium integrity reaches by restoring the interspersed lower integrity reaches, i.e., to fill in the gaps between nearby high and medium integrity reaches. This objective did not apply where the entire reach was engineered or required impracticable restoration template efforts, unless other contingencies were made (e.g., the Orange County Great Park).

This restoration objective applied to six riparian reaches (Figure 6). Restoration of these sites would result in long reaches of riparian habitat with medium to high integrity. One of the identified riparian reaches was also identified as a restoration site under the second restoration objective. Restoration should focus on riparian areas that would produce the most

ecological benefit for the level of effort expended. Site selection prioritized those areas that involve conventional restoration and not rely solely on enhancement activities.

Table 5 lists suits suitable for restoration. The sites are prioritized with lower numbers representing sites expecting to have the most aquatic resource benefits with respect to the level of effort. All reaches are located within areas eligible for the SAMP/MSAA.

Table 5. Details of prospective restoration sites connecting high/medium integrity resource reaches.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
1	a	Bee Canyon Wash	BE-03-1	Incised	Light	854	On University of California property; connects to Great Park drainage corridor; identified as UNBWC ³ restoration site
2	a	Borrego Canyon Wash	BG-05b-1	Incised	Light	1193	Directly along alignment of proposed Alton Parkway extension
3	a	Bonita Creek	BO-09-1	Incised	Light	996	Downstream of San Joaquin Reservoir; identified as UNBWC ³ restoration site
4	a	Borrego Canyon Wash	BG-05a-1	Incised	Heavy	1121	Along Baker Ranch proposed development
5	b	Sand Canyon Wash	SC-01-1	Constrained	Light	200	Mason Regional Park; identified as UNBWC ³ restoration site
6	b	Sand Canyon Wash	SC-01-3	Constrained	Light	966	Mason Regional Park; identified as UNBWC ³ restoration site

¹ Best possible restoration outcome; “incised” templates allows for moderately incised conditions after restoration work is completed and ‘constrained’ templates allow for restoration with constraints on either side of the bank

² Amount of work needed; “light” earthwork requires less than 6 feet of excavation and “heavy” earthwork requires greater than 6 feet of excavation

³ Upper Newport Bay Watershed Committee

D. Restore Reaches within the Headwaters

The fourth restoration objective is to restore reaches within the headwaters. This objective recognizes the value of headwater streams to the aquatic ecosystem functions of a Watershed, as discussed above.

The remaining headwater local drainage basins in the Watershed are protected as part of the existing NCCP preserve system and also require only enhancement activities. Therefore, the remaining headwater local drainage basins are already protected.

E. Restore Reaches with Species of Endangered, Threatened, or Special Concern

The fifth objective is to restore reaches near areas where state or federally listed aquatic species have been observed. This objective increases the habitat for known locations of sensitive species in order to maintain their existing populations and to increase the habitat quality and size to attract more individuals. Reaches assigned restoration templates of “Engineered Template” or “Impracticable” were excluded from further consideration due to the amount of work that would need to be performed or apparent incompatibility with existing land uses. Site selection favored those projects that involve restoration in the traditional sense and not rely solely on enhancement.

Thirty-four drainage basins had at least one observation of sensitive species. Within these drainage basins, 22 reaches were identified as possible restoration sites (Figure 7). Some of these sites were also identified under previous objectives. Restoration of these sites should take into account the species present and conducting the work in manner that would not adversely affect the species. Of these 22 reaches, only reach RS-06-1 is located within areas potentially eligible for the SAMP/MSAA abbreviated permitting system. The status of the sites as potential restoration sites would be considered during the review of any application to impact these reaches.

Table 6 lists sites suitable for restoration. In contrast to the other restoration objectives, prioritization is only partially based on achieving gains in functional integrity. The purpose of restoring these sites is to provide habitat for sensitive species, which does not always depend on normal measures of riparian ecosystem integrity.

Table 6. Details of prospective restoration sites with endangered or threatened species habitat.

ID	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Species of Interest	Notes
1	Bee Canyon Wash	BE-03-1	Incised	Light	681	Mud nama ³	On University of California property; connects to Great Park drainage corridor; identified as UNBWC ⁸ restoration site
2	Bee Canyon Wash	BE-03-3	Incised	Light	335	Mud nama	Downstream of SR-241
3	Rattlesnake Canyon Wash	RS-06-1	Natural	Light	883	LBV/SWFC ⁴	Upstream of Rattlesnake Canyon Reservoir
4	Trabuco	TB-03-1	Natural	Light	807	LBV/SWFC	Upstream of Siphon Reservoir

ID	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Species of Interest	Notes
	Channel						
5	Bee Canyon Wash	BE-04a-1	Incised	Heavy	516	Mud nama	Downstream of former Lambert Reservoir
6	Bonita Creek	BO-09-1	Incised	Light	410	LBV/SWFC	Downstream of San Joaquin Reservoir; identified as UNBWC ⁸ restoration site
7	Borrego Canyon Wash	BG-03-1	Incised	Light	638	CaGN ⁵	Upstream of Irvine Boulevard; identified as UNBWC ³ restoration site
8	San Diego Creek	SD-12a-1	Natural	Light	254	LBV/SWFC, SPT ⁶	Downstream of Veeh Reservoir
9	University of California	UC-03-1	Incised	Light	889	Southern tarplant ⁷	On UCI property
10	San Diego Creek	SD-11-1	Constrained	Light	996	LBV/SWFC, SPT	Downstream of Veeh Reservoir
11	Sand Canyon Wash	SC-05-2	Natural	Light	1050	LBV/SWFC	Continuous with SC-06-1; just upstream from Sand Canyon Res.
12	Sand Canyon Wash	SC-02-1	Natural	Light	976	LBV/SWFC	Mason Regional Park; within mitigation site
13	Sand Canyon Wash	SC-01-1	Constrained	Light	492	LBV/SWFC	Mason Regional Park; identified as UNBWC ³ restoration site
14	Sand Canyon Wash	SC-01-3	Constrained	Light	206	LBV/SWFC	Mason Regional Park; identified as UNBWC ³ restoration site
15	Rattlesnake Canyon Wash	RS-05-1	Incised	Light	2330	LBV/SWFC	Upstream of Rattlesnake Canyon Reservoir
16	Sand Canyon Wash	SC-06-1	Incised	Heavy	854	LBV/SWFC	Continuous with SC-05-2 and SC-08a-1; adjacent to PA22 development
17	Borrego Canyon Wash	BG-04a-1	Incised	Light	200	CaGN	Upstream of Irvine Boulevard; identified as UNBWC ³ restoration site
18	Peters Canyon Wash	PC-04-2	Incised	Light	966	LBV/SWFC	In Peter's Canyon Regional Park; identified as UNBWC ³ restoration site
19	Bonita Creek	BO-08-1	Incised	Light	1322	LBV/SWFC	Upstream of compensatory mitigation site; adjacent to SR-73
20	San Diego Creek	SD-10-1a	Natural	Light	472	LBV/SWFC	Along Needlegrass Creek
21	San Diego Creek	SD-10-1b	Natural	Light	840	LBV/SWFC	Along Needlegrass Creek
22	San Diego Creek	SD-10-2	Incised	Light	333	LBV/SWFC	Along Needlegrass Creek

¹ Best possible restoration outcome; "incised" templates allows for moderately incised conditions after restoration work is completed and 'constrained templates allow for restoration with constraints on either side of the bank

² Amount of work needed; "light" earthwork requires less than 6 feet of excavation and "heavy" earthwork requires greater than 6 feet of excavation

³ California Native Plant Society, List 2 species

⁴ Least Bell's vireo and southwestern willow flycatcher, both federally and state-listed endangered species

⁵ Coastal California gnatcatcher, federally listed threatened species and State of California species of special concern

⁶ Southern pond turtle, State of California species of concern

⁷ California Native Plant Society, List 1B species

⁸ Upper Newport Bay Watershed Committee

F. Restore Reaches, Prioritizing with the Greatest Amount of Functional Lift per Level of Effort

The rationale for this restoration objective was to maximize integrity scores needed to realize the functional benefits with respect to effort. Each reach was assigned an aggregate score of functional lift per level of effort across all three integrity indices: water quality, habitat, and hydrology. The score was used as a surrogate for a restoration benefit-to-cost of ratio. Reaches assigned restoration templates of “Engineered Template” or “Impracticable” were excluded from further consideration due to the amount of work that would need to be performed as well as the constraints of existing land uses. In addition, reaches that required no work or involved primarily enhancement activities such as light or heavy planting were excluded since the functional lift value of restoration would be minimal.

Figure 8 shows the remaining 15 reaches in the context of areas eligible for the SAMP/MSAA, and Table 7 and classifies the reaches in quartiles with respect to level of lift/level of effort. The sites are prioritized with lower numbers representing sites expecting to have the most aquatic resource benefits with respect to the level of effort. Among the 4 classes, reaches within the two highest quartiles should be prioritized for restoration. Reaches within the other two classes should be restored on a case-by-case basis. Many of the potential restoration sites are in areas that will be proposed for avoidance. The remaining sites are on private property or in local government control. Any area whose integrity is improved could be subsequently included in the reserve system. Some of these restoration areas were not included within the areas eligible for the SAMP/MSAA because of their relative low ranking in the overall prioritization system and because of the contingencies needing to be addressed before restoration occurs.

Table 7. Details of the Remaining Prospective Restoration Sites.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
1	a	Bonita Creek	BO-16a-3	Natural	Light	190	Underpass of SR-73
2	a	Hicks Canyon Wash	HK-01-3	Incised	Light	776	Partially underground channel within eucalyptus grove
3	a	Bee Canyon Wash	BE-11b-1	Natural	Heavy	666	North of SR-141
4	a	University of California	UC-01-1	Incised	Light	766	Next to University Research Park

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
5	b	San Diego Creek	SD-13a-1	Incised	Light	2250	Within a eucalyptus grove
6	b	Bommer Canyon	BM-01-3	Incised	Light	431	Within a City of Irvine local park
7	b	Serrano Creek	SE-07-1	Constrained	Light	476	Surrounded by industrial parks
8	b	Bee Canyon Wash	BE-06-3	Incised	Heavy	234	Round Canyon Wash downstream of SR-241 and upstream of BE-06-2
9	c	Laguna Channel	LG-04-1	Incised	Light	1592	Upstream of old Laguna Reservoir
10	c	Serrano Creek	SE-06-1	Constrained	Light	815	Surrounded by a nursery, upstream of SE-05-1
11	c	San Diego Creek	SD-08-1	Incised	Light	475	Next to Irvine Meadows Amphitheater
12	c	Rattlesnake Canyon Wash	RS-07-1	Incised	Light	600	Adjacent to IRWD property
13	d	Bee Canyon Wash	BE-06-2	Incised	Light	206	Round Canyon Wash downstream of SR-241 and BE-06-3
14	d	Serrano Creek	SE-04-1	Incised	Light	603	Upstream of Trabuco Road
15	d	Serrano Creek	SE-05-1	Constrained	Heavy	965	Surrounded by industrial parks and downstream of SE-06-1

G. Other Considerations

Beyond the criteria described above and in the Restoration Plan, four general considerations were important in characterizing restoration activities. First, restoration of aquatic resources should not impact sensitive upland habitats, nor necessitate compensatory mitigation. For example, expanding a riparian reach into coastal sage scrub would constitute a potentially significant impact, making the site selection less preferable than one that did not. Candidate reaches within native coastal sage scrub were identified, but the potential conflicts with sensitive upland habitats were noted.

Second, restoration activities that involved work on degraded reaches were preferred over those needing only enhancement activities. Work involving only planting was identified as enhancement, not conventional restoration. Work involving light to heavy earthwork to re-establish ecologically functioning channel profiles followed by planting was considered restoration and preferred over enhancement.

Table 8 lists remaining sites suitable for enhancement. These sites, as shown in Figure 9 require minimal earth-moving in order to improve the sites. The sites are prioritized with lower numbers representing sites expecting to have the most aquatic resource benefits with

respect to the level of effort. The combined priority restoration and enhancement opportunities resulting from the analysis described herein is represented as Figure 10.

Table 8. Details of prospective enhancement sites.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
1	a	Serrano Creek	SE-03-1	Incised	Heavy	37	Upstream of Bake Parkway adjacent to off-line basins
2	a	Bonita Creek	BO-16a-2	Natural	Heavy	418	South of Sage Hill High School; extends connection under SR-73
3	a	Agua Chinon	AC-09-1	Natural	Heavy	536	Upstream of SR-241
4	a	San Diego Creek	SD-15a-1	Incised	Heavy	361	Surrounded by mobile homes in Lake Forest; isolated
5	a	San Diego Creek	SD-15b-2	Incised	Heavy	235	Surrounded by mobile homes in Lake Forest; isolated
6	a	Agua Chinon	AC-06-1	Incised	Heavy	567	Immediately downstream of Agua Chinon Basin
7	a	University of California	UC-02-2	Incised	Light	354	Within UCI Open Space
8	a	Bonita Creek	BO-02-1	Natural	Light	574	Upstream of BO-01-1; downstream of BO-06-1
9	a	Borrego Canyon Wash	BG-05c-1	Constrained	Light	509	Downstream of SR-241; adjacent to Baker Ranch
10	b	Agua Chinon	AC-07-1	Natural	Heavy	550	Within Agua Chinon Basin; enhancement may interfere with flood control work
11	b	Sand Canyon Wash	SC-11a-1	Natural	Light	464	Within Shady Canyon open space; downstream of SC-09-2
12	b	San Diego Creek	SD-09a-1	Natural	Light	1252	Upstream of SD-07-2
13	b	Shady Canyon	SH-03-1	Natural	Heavy	326	Within Shady Canyon open space; downstream of SH-02-1
14	b	Bommer Canyon	BM-01-1	Natural	Heavy	326	Within Turtle Rock community
15	b	Bonita Creek	BO-01-1	Natural	Light	1208	Adjacent to Bonita Creek Park; upstream of confluence with San Diego Creek
16	b	Agua Chinon	AC-03-1	Incised	Heavy	383	Upstream of Irvine Boulevard
17	b	Bonita Creek	BO-04-1	Incised	Heavy	548	Upstream of Ford Road overpass
18	b	Bee Canyon Wash	BE-11a-2	Incised	Heavy	156	Upstream of SR-241; downstream of Bowerman Landfill
19	b	San Diego Creek	SD-07-2	Incised	Heavy	1903	Upstream of I-405; downstream of SD-09a-1
20	c	Bonita Creek	BO-06-1	Natural	Light	672	Surrounded by Bison Ave., Macarthur Blvd., and SR-73
21	c	Bonita Creek	BO-07-1	Natural	Light	263	Upstream of BO-06-1 and downstream of existing mitigation site
22	c	Agua Chinon	AC-05-1	Incised	Heavy	185	Downstream of Agua Chinon Basin; upstream of military housing
23	c	San Joaquin Channel	SJ-04b-1	Natural	Heavy	551	Within Shady Canyon open space
24	c	Peters Canyon Wash	PC-04-1	Natural	Heavy	1249	Within Peters Canyon Regional Park

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
25	c	San Diego Creek	SD-12b-1	Natural	Heavy	333	Upstream of Veeh Reservoir and downstream of Laguna Hills Golf Course
26	c	Sand Canyon Wash	SC-04-1	Natural	Heavy	1354	Within Strawberry Farms Golf Course; downstream of SC-04-2
27	c	Serrano Creek	SE-04-2	Natural	Light	1293	Downstream of Dimension Drive
28	c	Borrego Canyon Wash	BG-07-1	Natural	Heavy	1317	Upstream of Portola Parkway; within Whiting Ranch Wilderness Park
29	c	Shady Canyon	SH-02-1	Natural	Heavy	1154	Within Shady Canyon open space; downstream of SH-03-1
30	c	Sand Canyon Wash	SC-04-2	Constrained	Heavy	217	Within Strawberry Farms Golf Course; upstream of SC-04-1
31	c	Sand Canyon Wash	SC-03-1	Natural	Light	766	Within Mason Regional Park mitigation area; downstream of BO-06-1
32	c	Borrego Canyon Wash	BG-15-1	Natural	Light	536	Upstream of SR-241; may be impacted by Portola Parkway Extension
33	c	Borrego Canyon Wash	BG-16-1	Natural	Light	317	Upstream of SR-241; may be impacted by Portola Parkway Extension
34	c	Sand Canyon Wash	SC-09-2	Natural	Light	1801	Within Shady Canyon Open Space; upstream of SC-11a-1
35	c	Serrano Creek	SE-08a-1	Incised	Heavy	1298	Upstream of Portola Parkway; within Whiting Ranch Wilderness Park
36	c	Serrano Creek	SE-03-2	Incised	Heavy	1840	Within Serrano Creek Community Park and undergoing revegetation

Third, restoration activities that conflicted with local land use ordinances pertaining to natural resources were excluded from being preferable restoration sites. For example, within the City of Irvine, some restoration work can only proceed with the removal of eucalyptus trees, an allelopathic species. However, local ordinances, which reflect the local residents' preference for eucalyptus windrows over native riparian trees, prohibit the removal of eucalyptus necessary for restoration of certain reaches. Potential restoration areas that are affected by the limitations of local ordinances were noted. Nevertheless, because local preferences may change in the future, the re-establishment of native riparian ecosystems in place of existing, non-native, eucalyptus windrows may become a greater priority.

While restoration sites would ideally be restored in order of priority, other factors will ultimately determine the selection of any particular site for restoration. Additional factors to consider include: restoration site availability; community acceptability of the restoration work; and appropriateness of the type of restoration work in relation to the type of impact for which compensatory mitigation may be required.

VI. Next Steps

The Corps and the Department are completing the Evaluation for establishing an alternative permitting process for the Watershed. The Corps anticipates proposing the establishment of a new Section 404 Letter of Permission procedure for authorizing selected activities and a Regional General Permit for maintenance activities. A Public Notice describing these procedures would be published concurrently with the draft Joint EIS/EIR. The Department anticipates proposing a Master Streambed Alternative Agreement at the same time.

In addition to the permitting programs, the Corps and the Department anticipate proposing a number of actions that would coordinate mitigation efforts in the watershed to help ensure that the aquatic and riparian ecosystems within the Watershed will be managed in a more systematic manner and that long-term protection for important resources outside of development areas is achieved. This would include a proposal for an aquatic resources conservation program, an implementing agreement with SAMP/MSAA participants, and establishment of a coordinating committee. The details of these elements are still under consideration, and will be described in the draft EIS/EIR.

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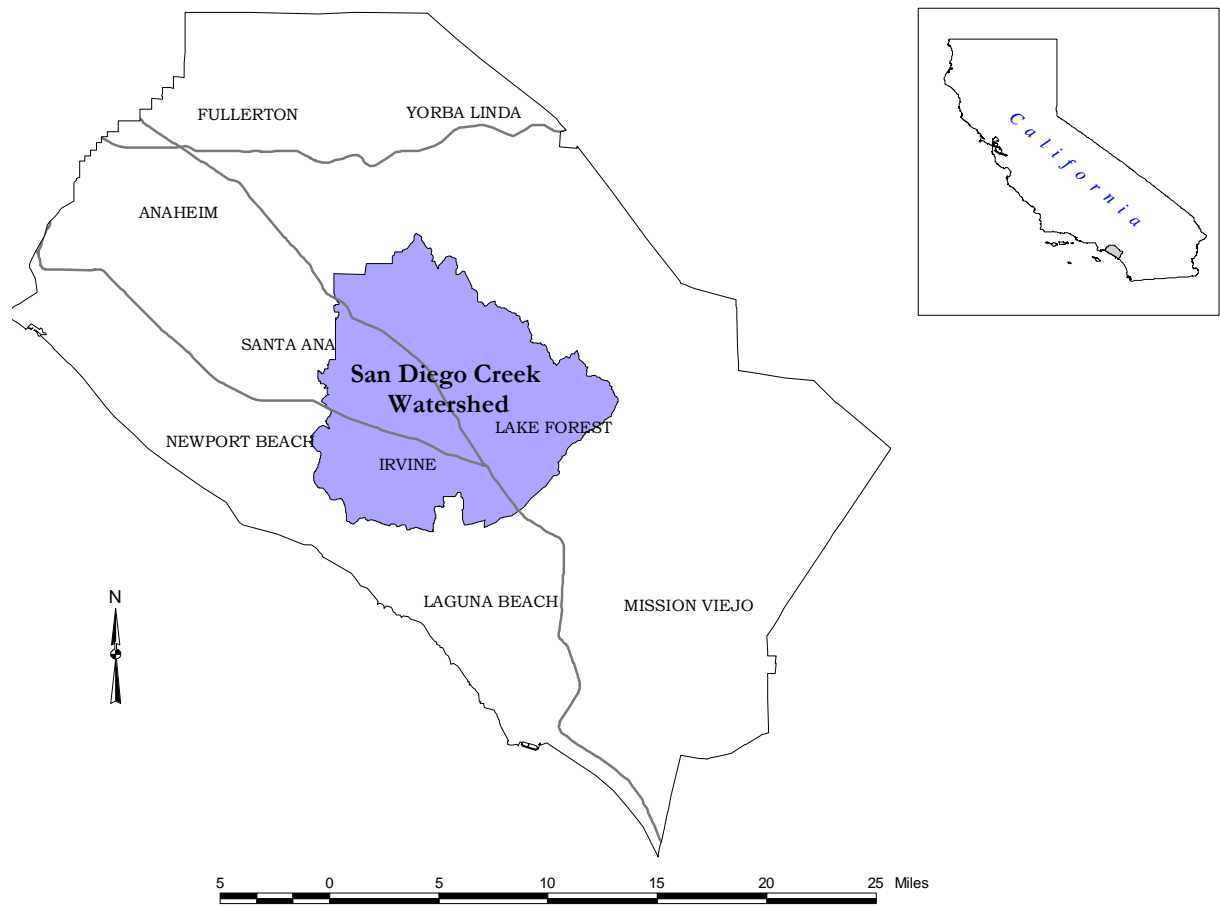


Figure 1. The San Diego Creek Watershed Special Area Management Plan area in Orange County, California.

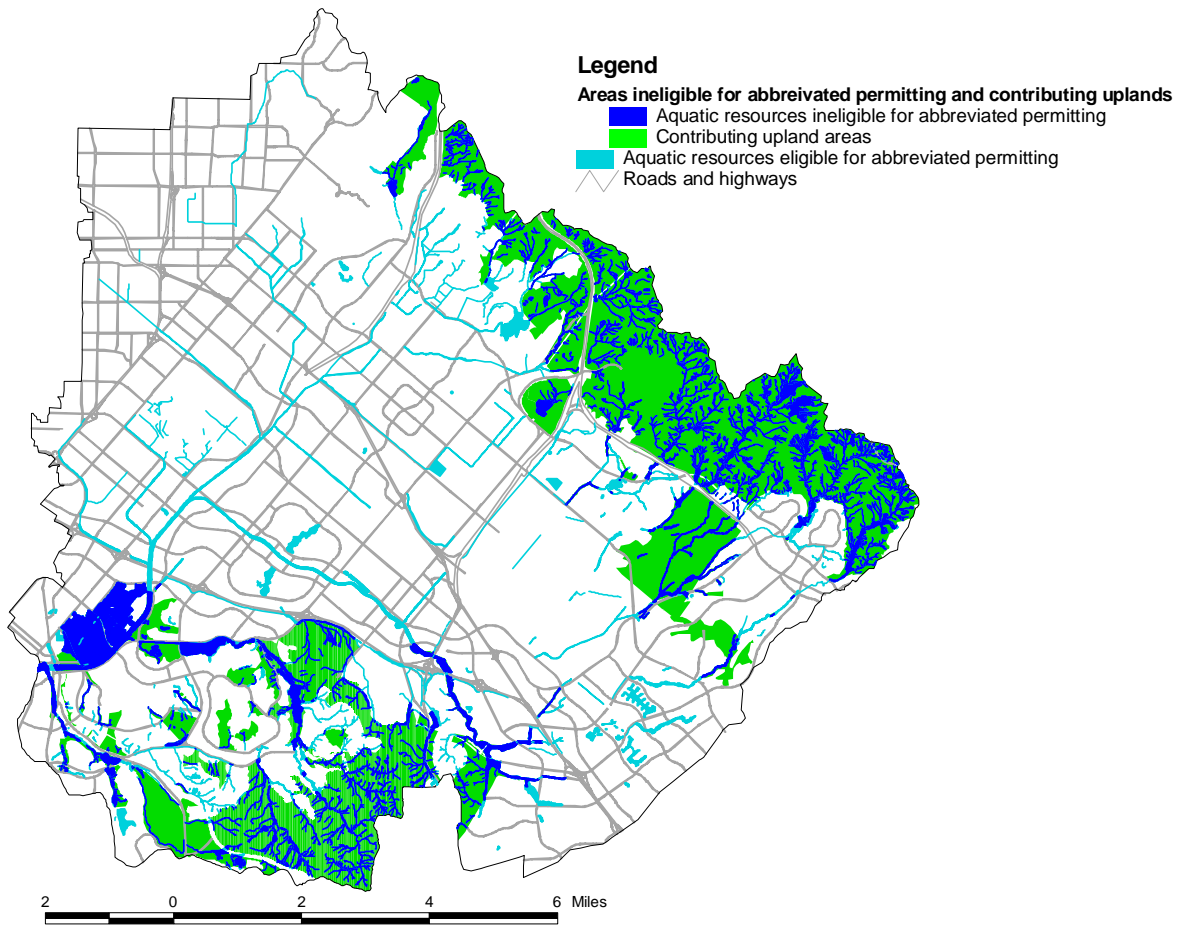


Figure 2. Aquatic resources ineligible for abbreviated permitting under Section 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code and their contributing upland areas.



Figure 3. Subwatersheds comprising the San Diego Creek Watershed.

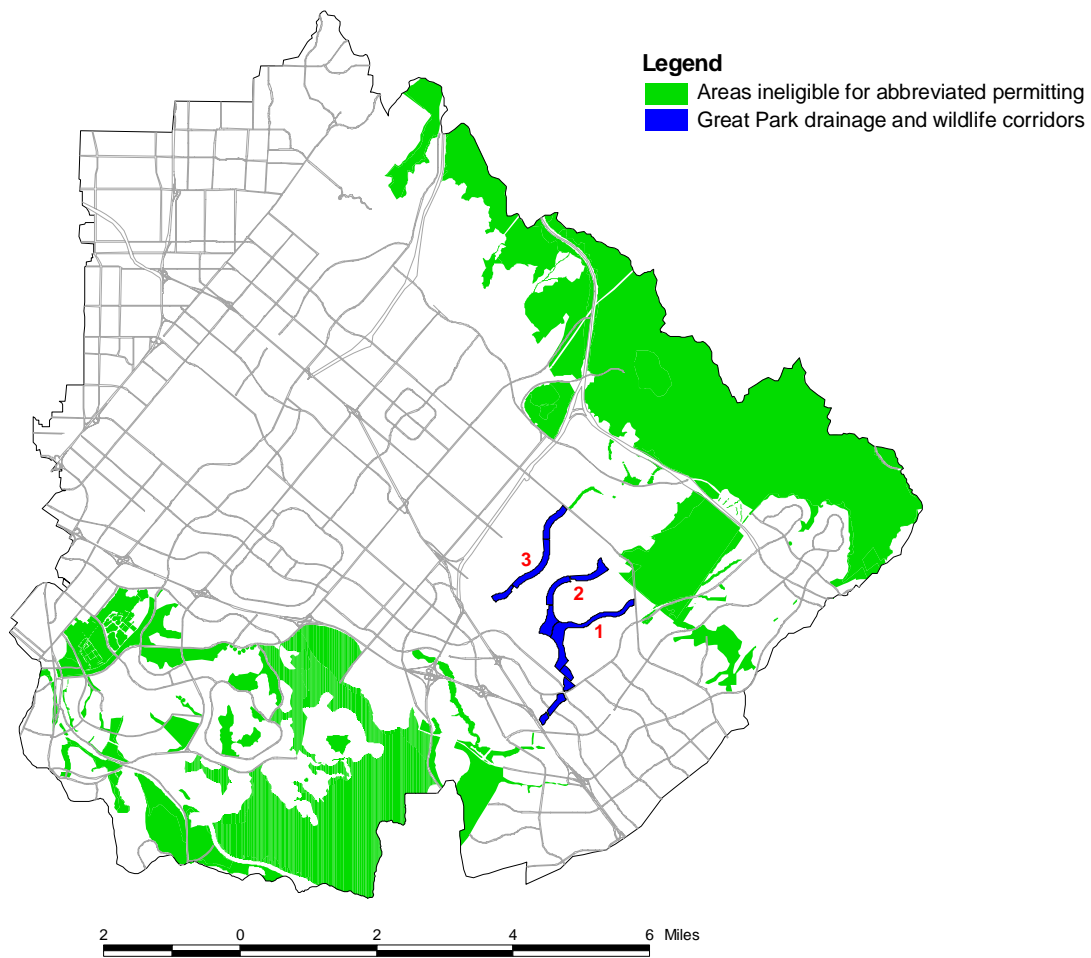


Figure 4. Prospective restoration areas connecting aquatic resources in the Orange County Central-Coastal NCCP Subregional Reserve System. See Table 3 for the key to the numbers.

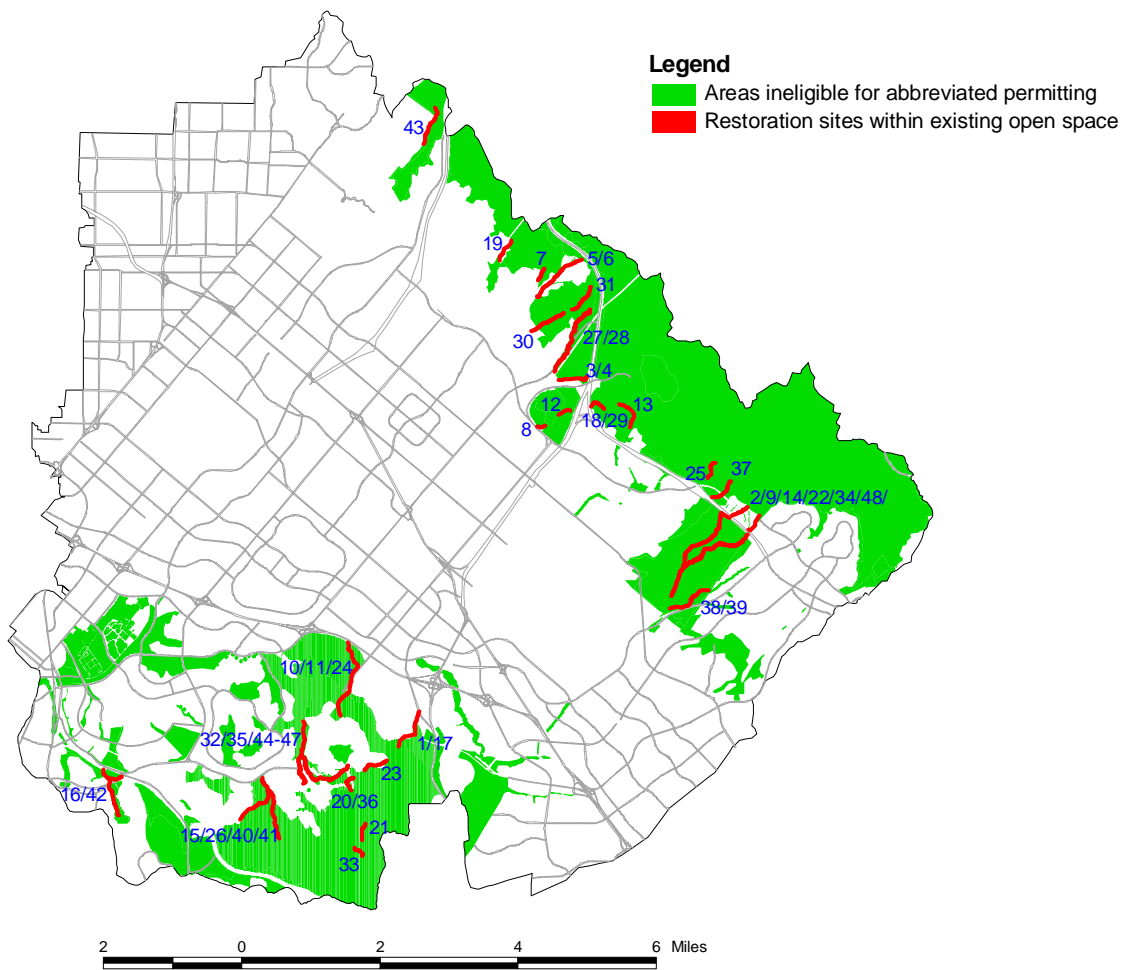


Figure 5. Prospective restoration sites within existing open space. See Table 4 for the key to the numbers.

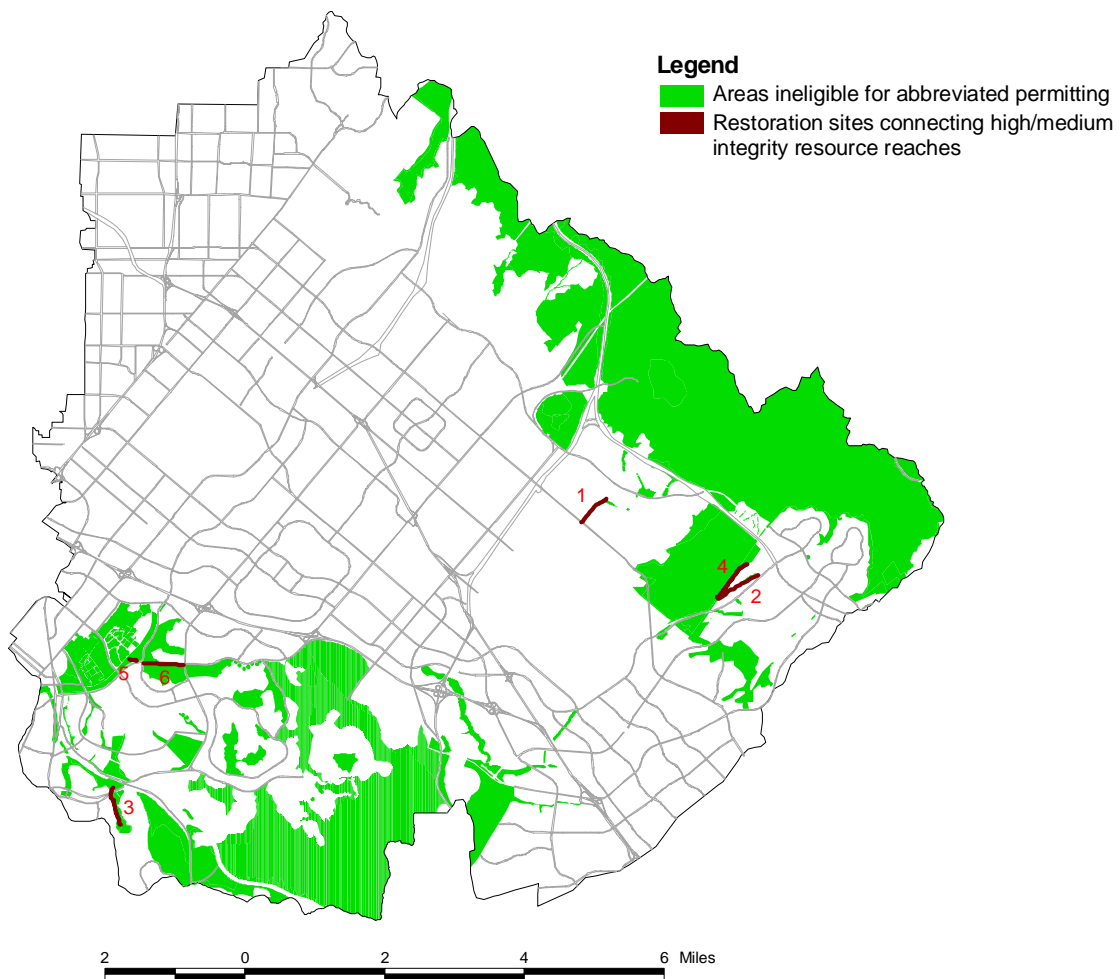


Figure 6. Prospective restoration sites connecting high/medium integrity resource reaches. See Table 5 for the key to the numbers.

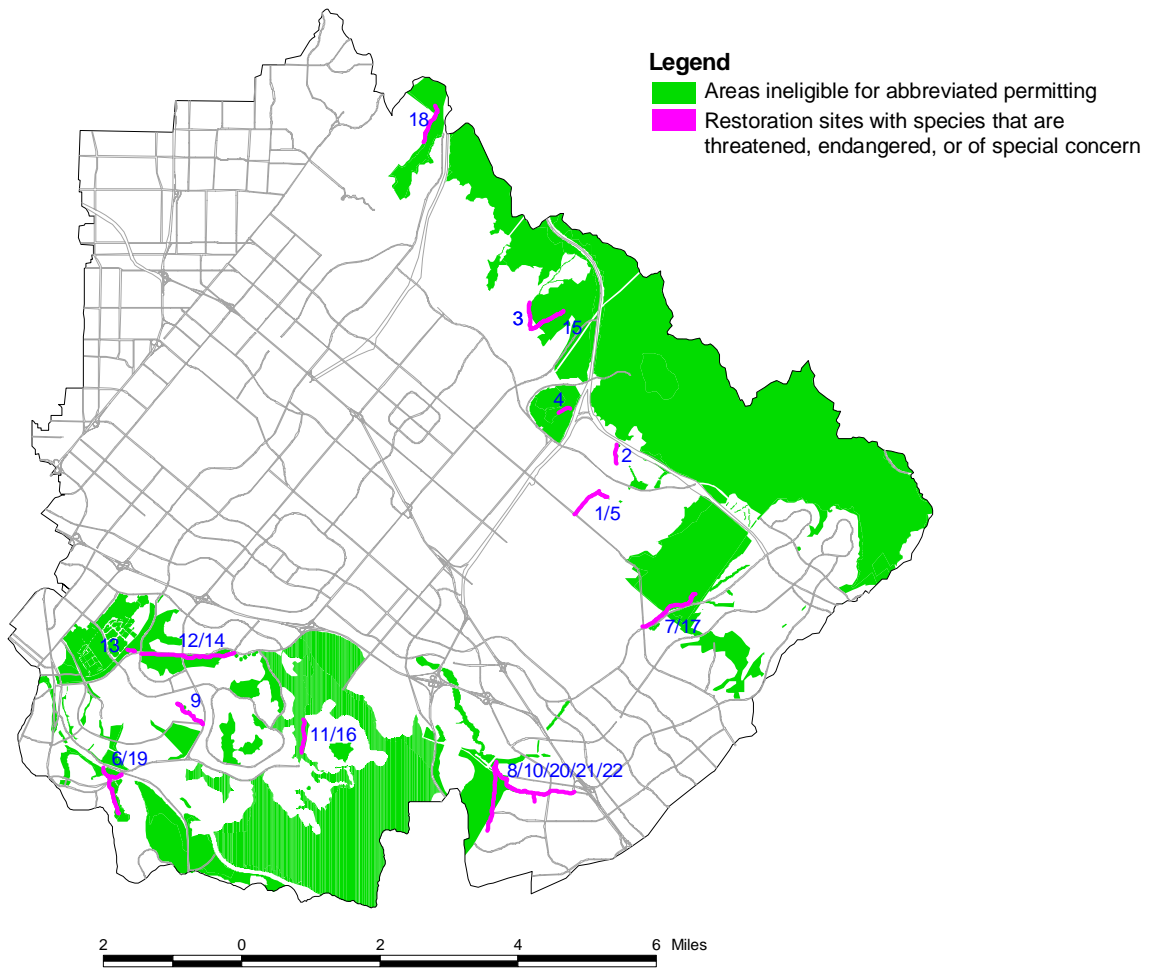


Figure 7. Prospective restoration sites with species that are endangered, threatened, or of special concern. See Table 6 for the key to the numbers.

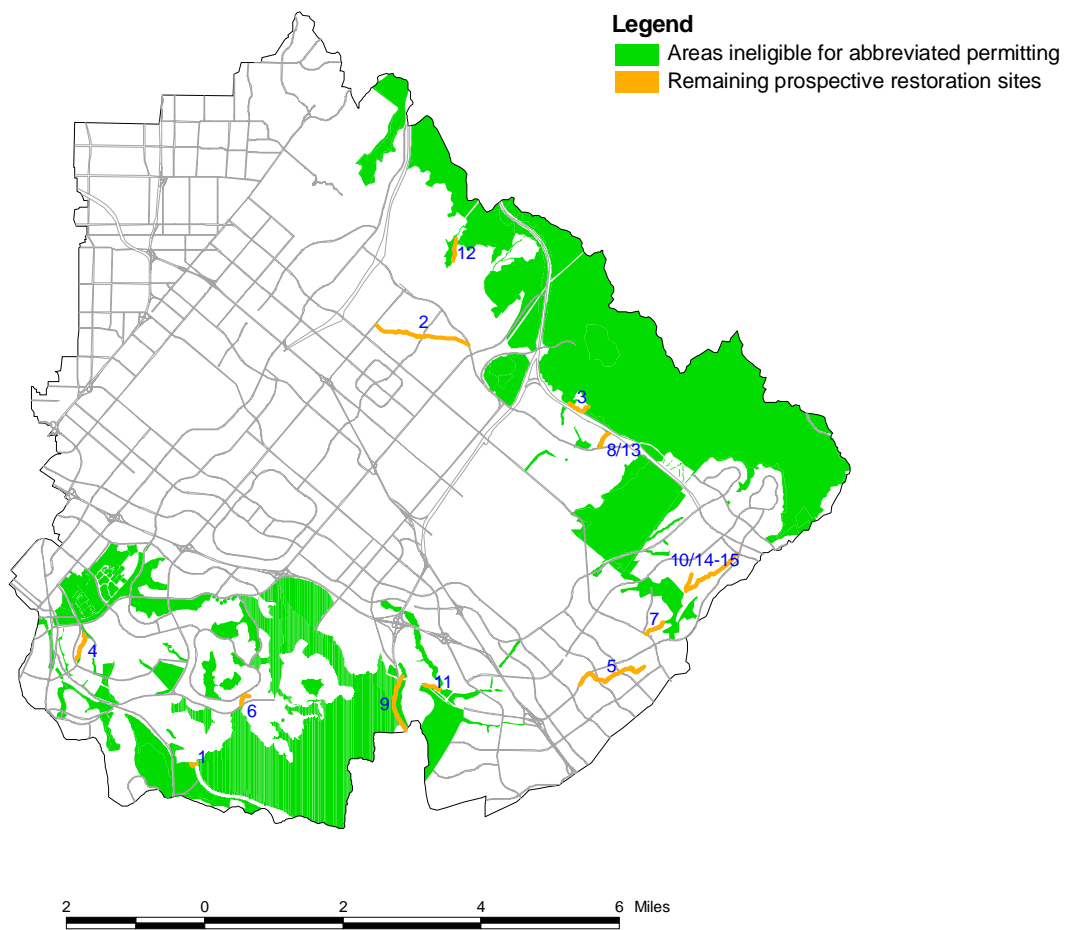


Figure 8. Remaining prospective restoration sites. See Table 7 for the key to the numbers.

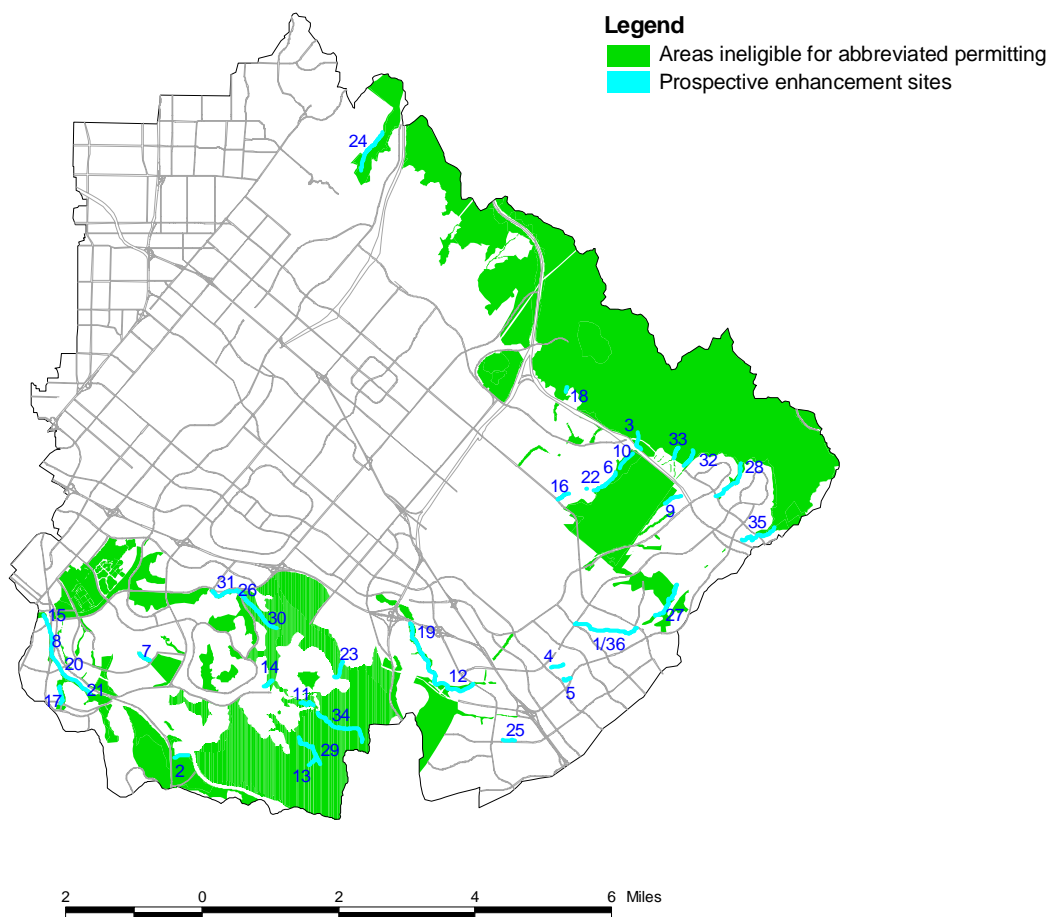


Figure 9. Prospective enhancement sites. See Table 8 for the key to the numbers.

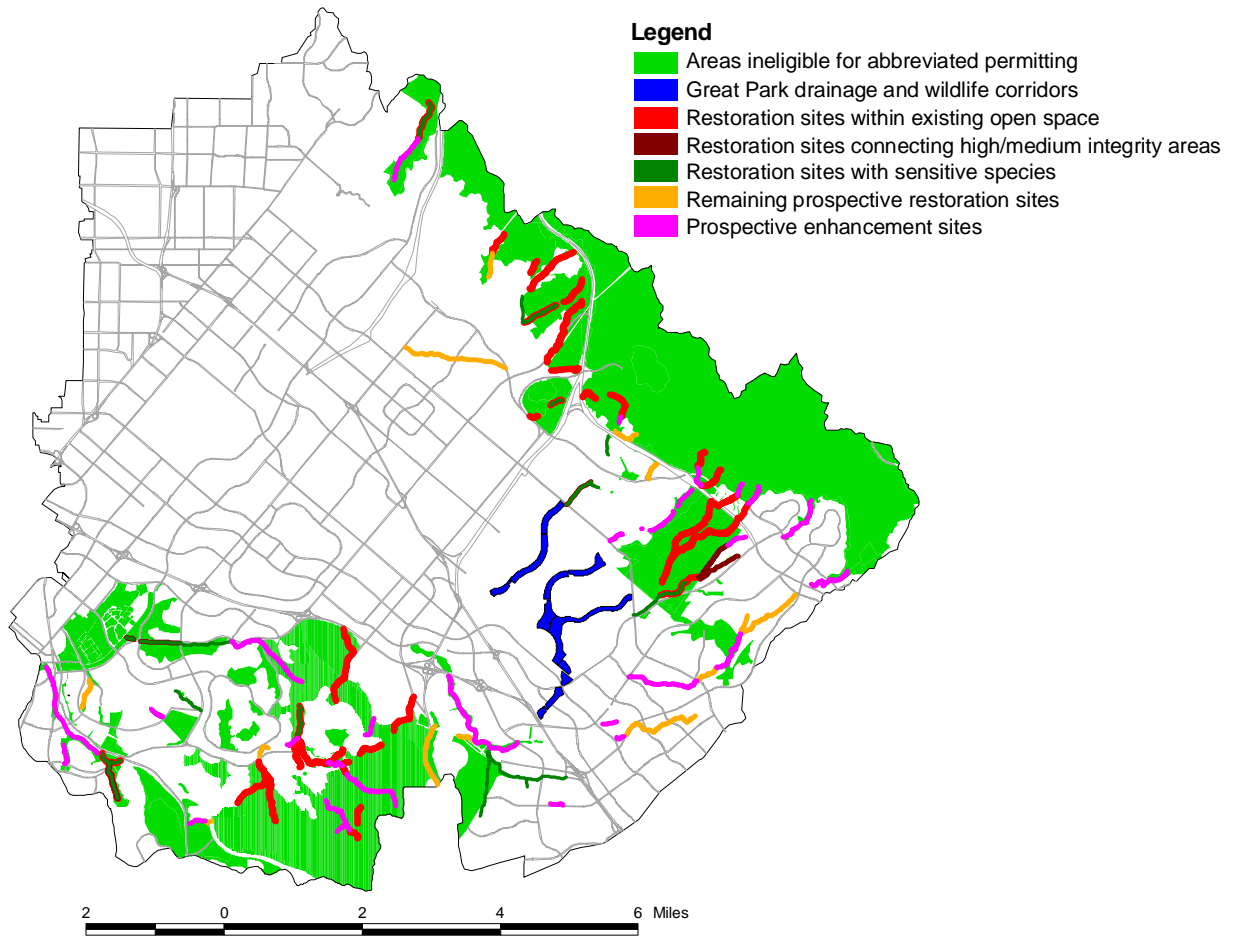


Figure 10. All prospective restoration and enhancement sites within the San Diego Creek Watershed.

Appendix A

MITIGATION POLICY FRAMEWORK-

For the San Diego Creek Watershed, the Corps shall propose to implement the following mitigation policies. These policies would apply to activities requiring a Section 404 permit or a 1600 agreement within the San Diego Creek Watershed.

General Mitigation Policies-

1. **Mitigation Sequencing.** The discharge of dredged or fill materials into waters of the U.S. must first be avoided and/or minimized to the maximum extent practicable. Compensatory mitigation should be determined after avoidance and minimization measures have been implemented in accordance with the Section 404(b)(1) Guidelines (40 CFR 230 and the MOA between EPA and the DoA dated February 6, 1990).
2. **Compensatory Mitigation.** To offset unavoidable impacts to waters of the U.S., the permittee shall be required to perform compensatory mitigation as approved by the Corps and other resource agencies. The mitigation plan should incorporate within-watershed mitigation to be conducted by the permittee or its agents, and/or include a payment to a Corps-approved in-lieu fee program or mitigation bank within the watershed.
3. **Prioritization of Mitigation Sites.** Compensatory mitigation sites should be prioritized in accordance with the “Aquatic Resources Conservation Program for the San Diego Creek Watershed Joint Special Area Management Plan (SAMP) / Master

Streambed Alteration Agreement (MSAA)” (to be published with the draft Joint EIS/EIR).

4. **Recommended Restoration.** Restoration design should be in accordance with the “San Diego Creek Watershed Riparian Ecosystem Restoration Plan: Site Selection and General Design Criteria” by ERDC dated March 2003. The ERDC restoration plan provides recommended restoration goals in consideration of landscape setting. (This will be available as an appendix to the Joint Draft EIS/EIR).
5. **Conformance with the “LAD Mitigation and Monitoring Requirements.”** All mitigation should conform to the Los Angeles District’s *Final Mitigation Guidelines and Monitoring Requirements*, dated April 19, 2004. A copy is available at http://www.spl.usace.army.mil/regulatory/mmg_2004.pdf.
6. **No Net Loss in Acreage and Functions.** Acreage and functions should not be reduced within the watershed on a program level. All permanent impacts should be mitigated at a minimum of 1:1 ratio (acreage created or restored to acreage permanently impacted).

Compensatory Mitigation for Temporary Impacts-

1. **Restoration On-Site.** After a temporary impact, an area should be restored to pre-construction elevations within one month. Re-vegetation should commence within three months after restoration of pre-construction elevations and be completed within one growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter should not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be

stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water.

2. **Offsets for Temporal Loss.** Temporary impacts to riparian habitat authorized by a Corps permit will be compensated, with consideration given to the time needed to fully recover temporarily impacted functions. In general, impacts to unvegetated aquatic resources will not require additional compensatory mitigation, impacts to herbaceous vegetation will require an additional 0.5:1 ratio of compensatory mitigation, impacts to shrubby vegetation will require an additional 1:1 ratio of compensatory mitigation, tree vegetation will require an additional 2:1 ratio of compensatory mitigation, and tree vegetation with dense understory vegetation will require an additional 3:1 ratio of compensatory mitigation.
3. **Preparation of Compensatory Mitigation Plan.** All on-site revegetation efforts require a mitigation and monitoring plan approved by the resource agencies.
4. **Delays in implementation of compensatory mitigation.** Any delays in implementation of compensatory mitigation will be penalized by an increase in 25% of the initial compensatory mitigation acreage for every three-month delay. If a delay is expected to occur, the permittee should notify the Corps and the Department to provide explanations for the delay and the new expected start date. The Corps and the Department will notify the permittee of each three-month delay and re-calculate the compensatory mitigation acreage. The Corps will give due consideration and may waive the penalty in cases where delayed compensatory mitigation occurred as a result of any natural cause beyond the permittee's control, including without limitation, fire, flood, storm, and earth movement, or as a result of any prudent action

taken by the permittee under emergency conditions to prevent, abate, or mitigate significant injury to persons and/or the property resulting from such causes. Note that any action undertaken during emergency conditions must receive prior authorization from the Corps (through abbreviated procedures, if appropriate) if the action involves a discharge of dredged or fill material into waters of the United States.

Compensatory Mitigation for Permanent Impacts-

1. **Mitigation Ratios.** Ratios will be determined based on area-weighted gain in functions at the compensatory mitigation site with respect to area-weighted loss of functions at the impact site. Functions will be measured in terms of functional units with respect to hydrology, water quality, and habitat indices. As a reminder, implemented ratios shall always be greater or equal to 1:1 even if the actual calculated ratios are less than 1:1. However, if the calculated ratio is less than 1:1, mitigation at 1:1 will generate excess credits above the calculated ratio to reduce additional mitigation requirements for temporal loss (see below).
2. **No Loss in Any Functional Type.** Compensatory mitigation will insure that losses to any function of the aquatic resources as calculated using the metric developed by the Corps for use in this watershed (contact this office of the Los Angeles District Corps for additional information). Specifically, mitigation shall ensure against loss of any function as characterized by all three area-weighted indices for hydrology, water quality, and habitat. Even if there is a gain in one or two of the indices, the overall mitigation must ensure that there is not a loss in any of the three indices. Functional losses can be avoided by increasing the mitigation ratio.

3. **Temporal Loss.** Temporal loss for permanent impacts will use the same guidelines as for temporary impacts. However, temporal loss will only apply to the habitat index, since the other two indices should not have a temporal lag.
4. **Delays in implementation of compensatory mitigation.** Compensatory mitigation should begin concurrently with project impacts or prior to project impacts. Any delays in implementation of compensatory mitigation will be penalized by an increase in 25% of the initial compensatory mitigation acreage for every three-month delay. If a delay is expected to occur, the permittee should notify the Corps and the Department to provide explanations for the delay and the new expected start date. The Corps and the Department will notify the permittee of each three-month delay and re-calculate the compensatory mitigation acreage. The Corps will give due consideration and may waive the penalty in cases where delayed compensatory mitigation occurred as a result of any natural cause beyond the permittee's control, including without limitation, fire, flood, storm, and earth movement, or as a result of any prudent action taken by the permittee under emergency conditions to prevent, abate, or mitigate significant injury to persons and/or the property resulting from such causes. Note that any action undertaken during emergency conditions must receive prior authorization from the Corps (through abbreviated procedures, if appropriate) if the action involves a discharge of dredged or fill material into waters of the United States.